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Milo G. Kellogg.

Every man who has studied the history of telephony will deeply regret the death of Milo G. Kellogg.

Always striving to advance apparatus and methods to higher types, Mr. Kellogg won a high place as a manufacturer, and a leader in the development of the telephone industry. But as a man who conceived the ideal of making human life more comfortable and human activities more efficient through a wide extension of telephone service, and who did so much to bring about an approach to this ideal, he rendered a magnificent service to the world.

"Going Value" of Telephone Plant.

An item to be taken into consideration by a telephone company in floating a bond issue or selling stock, is that over and above the value of its physical property there is a "going value" in connection with its plant beyond the mere cost of construction. This "going value" is a legitimate and actual asset which may properly be brought to the attention of prospective bond buyers and stock purchasers. On the other hand, it is a factor not customarily suggested to local assessors or to a state tax commission, for obvious reasons. This "going value" has frequently been recognized by courts and commissions in connection with public service corporations.

The question has come before the courts only within the past score of years and almost always in connection with the sale of water-works plants to municipalities.

In one such case the court said: "It is obvious that the mere cost of purchasing the land, constructing the buildings, putting in the machinery, and laying the pipes in the streets—in other words, the cost of reproduction—does not give the value of the property as it is to-day. A completed system of water works, such as the company has, without a single connection between the pipes in the streets and the buildings of the city, would be a property of much less value than that system connected, as it is, with so many buildings, and earning, in consequence thereof, the money which it does earn." National Waterworks vs. Kansas City, 62 Fed. Rep., 853.

In another case the court, in speaking of a water-works plant, put the matter this way: "Nevertheless, it has value as a structure. But more than this, it is a structure in actual use, a use remunerative to some extent. It has

customers. It is actually engaged in business. It is a going concern. The value of the structure is enhanced by the fact that it is being used in, and, in fact, is essential to, a going-concern business."

Brunswick Water District vs. Maine Water Co., 99 Maine, 371. Other cases upon the same subject are: Gloucester Water Company vs. Gloucester, 179 Mass., 365; Kennebec Water District vs. Waterville, 97 Maine, 185.

Operators Dislike to Leave Interesting Work.

Educational work taken up at Topeka, Kansas, in the operating room of the Independent Telephone Company, was the subject of comment in our editorial pages last May. In the article then printed, the point was emphasized that by educating its operators to be interested in their work, and understand it better, the company was following a sound policy, because well trained operators strengthen the standing of a company with its subscribers.

Mr. H. E. Davis, superintendent of the company, who has been in direct charge of the operating room, furnishes information which brings out a new point in favor of the plan carried out at Topeka. It has been found that, as the work has become more interesting, the duration of employment has been raised, and losses from the staff of operators have been diminished. In July, 1908, when the total force was 69, 11 operators left, and 16 new ones had to be taken on and trained. In July, 1909, owing to a cut-over to the common battery system which enabled loads to be increased, and the vacation season, the force on duty was 59 operators. In this month three operators left the staff, two to be married and one to take a place with a larger salary. It was necessary to hire only four operators during this month. In August, 1908, out of a total of 71 operators, 8 left the service and 10 new girls had to be hired. In August, 1909, only two operators left a staff of 56 operators, one to be married and the other to go to college. It was not necessary to hire any operators during this month. The summer season of 1909 was extremely hot, the thermometer in the operating room at Topeka registering between 90 and 96 degrees on a large number of days throughout July and August.

It is evident that the efforts of the management to help the girls understand their work better, and arouse their interest in improving service, have had a profound influence upon that most important factor in producing efficiency—the increase of the average period of operators' employment.

The Frequency of Inspection in Different Exchanges.

In the maintenance of telephone equipment regular inspection is a primary requisite of reliable service. The anticipation of troubles needs to be kept constantly in mind. The frequency of the inspection desirable is something of a problem, however, since the wear and tear upon the equipment is never the same in two different exchanges, even in the same city. Even on the same board, certain plugs and jacks will wear out disproportionately fast, contacts will grow defective in the most irregular way, and the behavior of batteries and gas engines, generators and instruments will exhibit an individuality that only those who operate similar apparatus in different locations can appreciate.

In electric railway service inspection can be arranged upon a mileage basis with good results, and the relation between traffic and wear approximately noted. In the manipulation of a telephone switchboard it would be a refinement of doubtful value to attempt to inspect equipment parts on a traffic basis, quantitatively, and probably a regular time interval is the most satisfactory method. This interval, however, may very well be varied by the wire chiefs, according to their judgment, for the different exchanges of a company's system, for such officials are in a better position to know when there is danger of the delicately adjusted parts of the board getting a bit out of tune, so to speak, than an administrative officer not in daily contact with the peculiarities of each installation. Of course, a certain informal inspection of the equipment is desirable whenever a trained eye is looking in that direction, but the thorough examination of parts in a regular listed order, checking the work covered and holding definite men responsible for given portions of the plant, costs too much in labor to perform at needlessly short intervals, and on the other hand, is too valuable a means of trouble prevention to neglect. Uniform practice is a good thing, but where the conditions of service vary widely it should not be followed blindly.

The Test of Liability.

Every telephone company has more or less claims made against it for damages arising out of its supposed negligence. It is usually difficult for the telephone manager to test the validity of these claims himself. In any claim of importance, he should, of course, consult his legal advisor. But in many cases of small claims he either settles or rejects them himself upon his own responsibility. Such managers will therefore be glad to have some sort of a working test for their guidance in these matters. In cases of broken contracts, the following rule has been laid down: "When two parties have made a contract, which one of them has broken, the damages for such breach of contract should be such as may fairly and reasonably be considered as arising naturally—that is, according to the usual course of things from such breach of contract itself, or as may reasonably be supposed to have been in the contemplation of the parties at the time they made the contract, as the probable result of it." Telegraph Co. vs. Edmondson, 91 Texas 209, 42 S. W., 549. Damages so remote as to fall without this rule, cannot be recovered. If they could be, then it could be claimed that a cattle dealer would be entitled to the market decline in value of his cattle because he failed to get telephone service with his agent in town to instruct him to sell at a particular hour, or that a sheriff, having a telephone contract, could recover because he failed to get telephone service with another subscribing officer to instruct the arrest of a person accused of crime and thereby lost a reward for the capture. Damages for failure to get telephone connection could be recovered under such special circumstances only in case the company had notice that these circumstances were apt to occur. Southwestern Telegraph and Telephone Co. vs. Soloman, 107 S. W. 214.

Kellogg and Dean Companies Unite

Within a few weeks the factories of the Dean Electric Company and the Kellogg Switchboard and Supply Company will be operating under one management. Arrangements for uniting the two companies have already been completed and only the minor details affecting a few positions in the organization and the operating of the factories need to be considered. A new company, to be known as the Kellogg-Dean Electric Company, will take over the factory of the Kellogg Switchboard & Supply Company in Chicago, its large cabinet-making plant a short distance outside the city, the Kellogg pole yards at Escanaba, Mich., and the big plant at Elyria, Ohio, which has been built up in the past few years by the Dean Electric Company. Although the executive offices will be in Chicago, and for many purposes the Chicago factory will be the main plant, it is considered that there will be distinct advantages to the new company in operating the Elyria plant, aside from the fact that its present capacity is needed; and the new company will continue to carry on important work at that place.

The new organization will utilize all the resources in men, equipment, and patent rights of both the companies which are united; in fact, its plans contemplate an expansion of activity, the need of which is felt in all quarters where the strength and wonderful prospects for future growth of the Independent operating companies are appreciated. The board of directors will represent not only the present management of both companies, but will be enlarged to 21 members, and men now prominent in the operating field who will participate in the ownership will, through their membership in this large board, have an important part in shaping the affairs of the new company.

Whether the executive board should be made up of three or five directors was not determined at the time this issue of TELEPHONY went to press. But if the board has five members it is probable that it will include A. G. Bean and W. W. Dean of the Dean Electric Company and Leroy D. Kellogg and J. B. Edwards of the Kellogg Switchboard & Supply Company. The operating men who will compose the balance of the directorate represent companies which are noted for their financial strength and vigorous policy of expansion, and all sections from the Atlantic to the Pacific will be represented.

The Kellogg Switchboard & Supply Company was founded in 1897 by Milo G. Kellogg. It has had a steady and consistent development, due in part to its sound business methods in dealing with operating companies, and also in a large degree to the great ability of the men who have been responsible for its prominence in engineering and shop practice. It has built and installed large common battery central offices for many of the principal cities of the country, including Indianapolis, Cleveland, St. Louis, branches, Pittsburg, Scranton, Wilkesbarre, Philadelphia, Buffalo, Albany, Los Angeles, main, Johnstown, Pa.; Pasadena, Cal.; South Bend, main, and others.

Its magneto apparatus, including a comprehensive line of switchboards, telephones, etc., is now in use in all parts of the country, and other products of its shops include several types of intercommunicating systems and minor telephone equipment.

It has a well-organized sales force covering the principal parts of the country. Branch houses are located at Kansas City, San Francisco, and Winnipeg, Canada.

The Dean company, incorporated in the spring of 1904 by W. W. Dean and associates, has from the start occupied a prominent place in the Independent telephone manufacturing field. The company's ability to produce large quantities of high-grade equipment at short notice through the perfection of its organization, including men of the highest type of skill and greatest energy, speedily attracted attention. The most notable system installed by this company, not only on account of the size of the order, but for the speed of its completion, is the central office equipment at Detroit, Mich., which includes a main exchange of 18,000 line multiple capacity, and two branch exchanges, with telephones for several thousand subscribers. Other well-known Dean installations already installed or ordered are: Niagara Falls, N. Y.; Waco, Tex.; Cleveland, branch exchange; St. Joseph, Mo.; Lincoln, Neb., toll board, etc. The Dean company also owes its success in part to its foresight in building up a strong selling force of men who are thoroughly in touch with the problems of the operating field.

This company has maintained branch houses at San Francisco and Kansas City for some time.

The Kellogg-Dean company, which now replaces both of these organizations, has been formed after careful consideration of the possibilities and needs of the Independent telephone industry by a large number of the men who have been most closely identified with building up its present strength.

The consolidation was promoted by Hopkins J. Hanford of Chicago, assisted by Chas. H. Aldrich of Chicago as attorney. Mr. Aldrich will continue as counsel for the new company.

The operating men who will form so considerable a proportion of the directorate will aid in maintaining close relations between shop methods and operating requirements. But a feature of this type of organization which is even more important to the industry is that it is a step designed to absolutely insure the future Independence of the Kellogg company, in accordance with the wish and intention of Milo G. Kellogg, expressed at the time control was restored to him last Spring.

Rochester, N. Y., Common Council Grants Independent Company Permission to Increase Rates.

An increase from $48 to $60 a year may be made on business telephones, as a result of a vote of the common council of Rochester, N. Y. Last Tuesday night it passed the amendment to the franchise of the Rochester Telephone Company, which increases its authorized rate for single line, unlimited business service. It also fixes the two-party line business rate at $48. Residence service is charged for as follows: Single line, $36; two-party line, $30; four party line, $24; and there is no message limit.

The vote adopting the amendment was seventeen for and two against; three of the members of the council were absent.

The business rate was the only one that figured in the council's consideration, and a petition of the company contained the names of nearly 1,700 of the 2,300 subscribers to business service, all approving the increase. It is estimated that the amended franchise, which takes effect immediately, will net the company at least $25,000 per year more than it receives under the present rates. It is believed that $50,000 worth of additional equipment will be ordered in the near future, mostly of conduit, cable and material for aerial lines.

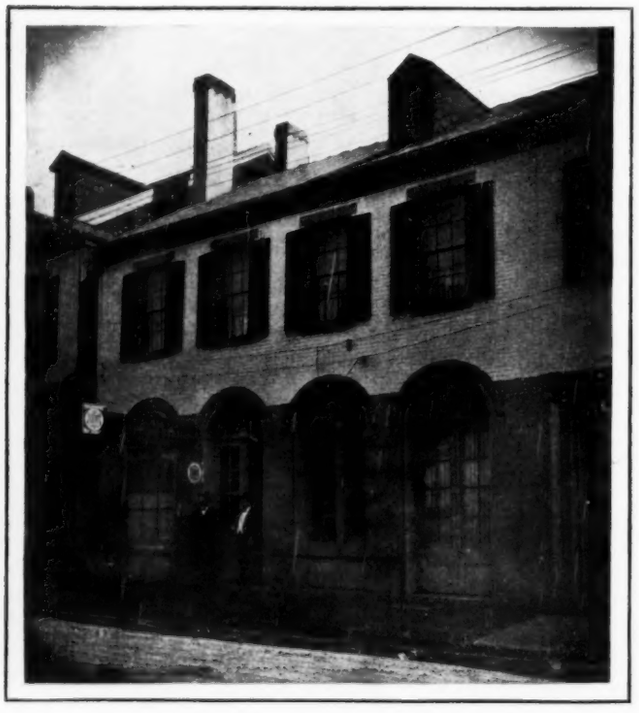
The amendment of the franchise for the Home company was one of the strongest testimonials for the continuance of telephone competition ever placed on record, because during the public hearings there have been numerous convicting arguments made against telephone monopoly, and for competition by the city's representative business men.

Looking Glass Prairie Telephone Company

By C. R. Harris

This is the somewhat unconventional name of an Independent telephone system in southwestern Illinois, twenty-five miles from St. Louis, which has had a phenomenal rise and progress within the past two years. Starting as a small private line between two farm houses on the Looking Glass Prairie, east of Belleville, Ill., it has, in the short time named, grown and grown until it now covers the greater part of Clinton, St. Clair and Washington counties. From the name it might be thought that this was the regulation Farmer telephone company, but it is not. While there are, of course, hundreds of farmers connected to the system, yet it is mainly an exchange and toll line company with first class plants in Mascoutah, Fayetteville, New Baden and many other towns in that section of the state.

In several ways this concern is unique. It is one of the few telephone companies that has paid for all construction entirely from its capital stock. Not owing a dollar, it is in a position to know just how its investment stands, what profit it brings, etc. Again, it collects good rates and requires all subscribers to sign a long term lease. Also, it limits the number of farmers on a farmer line to six, all lines being full metallic.



Exchange Building of the Looking Glass Prairie Telephone Company at Mascoutah, Ill.

The farm land in this section is valuable, the farms relatively small and the farmers wealthy. The company has made it a point not to miss a farmer, but connect each and every one with the system, and furthermore, nearly all the farmers have stock in the company, not one share merely, but several shares, one farmer having as much as $1,000 invested in it. There is nothing "Mutual" about it; it is run on the same plan as any other successful corporation.

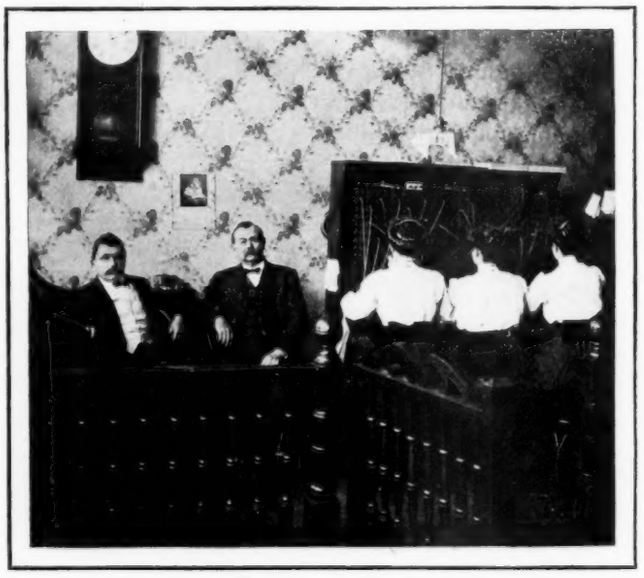
The construction work is of the highest class—no oak pole business here. In short, the system was started right and is being run right; subscribers are satisfied with the service and stockholders are pleased with the investment; it would be impossible to say more of any enterprise.

The company is strictly Independent; it not only does not connect with the Bell, but does not connect with any-

Mr. Mann, Mr. Wombacher and Some of Their Linemen After Opening the Exchange at Fayetteville, Ill.

one that connects with the Bell. The latter served this section before the Independent company started but the contrast between what the Bell had two years ago and what the other company has now is remarkable. The Bell company has practically ceased to do business, both local and long-distance, as the Looking Glass Company gets most of the local business and the Kinloch, the long-distance telephone tolls.

The story of the birth and building of the Looking Glass Prairie company is interesting. Should any Bell man ever become seized with a burning desire to get down to the root of things and analyze telephone conditions as they really exist; to study cause and effect and find out why his company has made no real headway in the past fifteen years, in spite of the huge sums of money spent by it, let him go to Mascoutah, Ill., and study the rise and progress



The Long-Distance Board.

of the Looking Glass Prairie Telephone Company. He will find there, nicely blended, all the elements of success on the part of the new and failure on the part of the old. There he can at once get back to first principles; to fundamentals, and there, close to nature, he will learn things never dreamed of in the complex philosophy of the muddled and mixed up machine known as the Bell telephone. He will come to the conclusion that the inevitable end of the machine is chaos, although he will be filled with admiration at the magnificent bluff that it has put up to stave off the final result as long as possible. The remark of King Louis XIV of France: "After us the Deluge," will come vividly to his mind; in short it is a trip he could well afford to make.

To show how completely the Bell company was routed at Mascoutah, I will add that two years ago the Kinloch's long-distance toll receipts from its toll station in Mascoutah were only $5 per month; now the Kinloch's long-distance toll receipts are running $500 a month and still rising. When the Kinloch long-distance sign went up and the Blue Bell came down, the editor of the local paper in

Mr. George E. Wombacher.

Mascoutah, who is interested financially in the new company, and besides is evidently something of a wag, announced the change in this fashion:

"Toll the Bell
For the Bell;
No more tolls,
For the Bell."

A great deal of credit should be given to George E. Hornbacher and Philip Mann who have by their indefatigable efforts, successfully piloted the new company through the obstructions commonly met with in starting an enterprise of this kind.

The Classification of Maintenance Expenses.

By Hamilton P. Fairman.

A discussion of this subject first requires a brief statement as to why a classification is necessary.

Maintenance is the process of keeping a plant up to its normal condition. Many small repairs are constantly required. Many parts of apparatus and equipment require replacement on account of either poor construction, obsolescence, natural decay or deterioration, or for causes which cannot be anticipated. In other words, if any portion of the plant, large or small, fails to perform its natural or proper functions its restoration comes under the head of maintenance.

An analysis or classification is required, therefore, in order to determine for what purposes expense is being incurred; to aid in determining if the original installation can be improved upon; if proper attention is being given to the manufacture of material; and if improved methods and designs can be established.

It is not enough to know that so many thousand dollars are required each year to maintain a plant, but it should also be known for what purpose each dollar is expended. By this means the effective life of a plant, as a whole and in its respective parts may be determined.

There exists some confusion between construction and maintenance expenses. This seems to have been brought about to some degree by the use of the term reconstruction. But the fact remains that reconstruction *per se* as distinguished from enlargement, is only a synonym for maintenance.

When a construction estimate is completed the expense should show the intrinsic value of the plant built or installed. This account may then be closed as it will balance material, labor, etc., against cash, etc. It may be opened at any time in case of an addition to the plant which materially increases its tangible value.

To maintenance should be charged all the expense of keeping up the plant. Some systematic routine must be established in order to provide money to carry on this expense. It is known that there are certain current expenses and others which will require attention in one, three, or five years as the case may be. The earnings of the plant must be distributed accordingly. Therefore a careful classification of the expenditures is advisable as a basis for proper distribution of the earnings.

Maintenance expenses can be classed under two distinct headings, viz.: ordinary and extraordinary.

Under "Ordinary" expense must be placed the cost of supervision, trouble clearing, inspections for the purpose of preventing trouble and such slight changes in plant as do not materially increase the intrinsic value.

From the figures thus secured, month by month, and year by year, a general average can be computed.

The classification consists of an analysis showing the exact cost of maintaining each portion of the property, whether equipment, pole line or real estate.

Under "Extraordinary" maintenance the cost of repairing unusual and unforeseen damage, resulting from wind, water, fire, etc., should be classified. Expense under this heading varies so widely that it is doubtful if a just average can ever be arrived at. If, however, this cost is considered with the ordinary expenses the value of supervision cannot be readily decided.

The total figures may show that one portion of the plant is being maintained at a much greater expense than a physically similar portion in a different locality. Investigation may show that one section has been visited by damaging storms, but that the ordinary expenses compare favorably. Therefore in figuring out the cost per unit, unusual expenses, brought about by conditions over which men have no control, should be eliminated.

The classification should begin at the very bottom of the line. The person who makes the disbursement is in a position to know the reason for the expense. To accelerate the handling of vouchers a simple code sign may be devised and used. It is easy for all parties concerned to read "12A" and interpret that it signifies that the expense was incurred on account of a broken line wire. All separate items having different code numbers or symbols, their use is applicable to the filling in of daily time sheets.

To secure all the details that will be required is one thing; to accomplish this as cheaply as possible is another point well worth consideration.

Reasonable Objects of Accounting*

By G. R. Fawkes

With the present trend of public opinion, and legislation toward governmental regulation by means of commissions, the subject of accounting is the most vital question that can be considered by those interested in public service business. When a Commission begins an investigation of a public service business, the first thing to receive attention is the accounting plan. The accounts are the only "lenses" through which the workings of a company can be seen, and they furnish the basis for all action. To use a phrase from Bryce, a Public Service Commission will have "the special skill and knowledge needed to distil from rows of figures the refined spirit of instruction." If the "rows of figures" are incorrect or incomplete, the "instruction" distilled therefrom will be misleading, and the resulting action will be affected accordingly.

This subject, however, is such a broad one, with so many different phases and so many opportunities for differences of opinion that it is with some hesitation that its discussion is attempted in a paper limited as this one must necessarily be. We cannot hope to more than touch upon the most important points, and if we are able to offer a few suggestions which will aid in the solution of the problems we encounter, its purpose will be accomplished.

The primitive object of accounting seems to be generally agreed upon. It is to show on the records the profit or loss of the business as a whole, and the degree of honesty and integrity exercised by the management.

The modern object of accounting is to show the degree of efficiency or wisdom exercised in connection with each transaction as well as the honesty and profits of the business as a whole.

The controversy concerning the merits or demerits of the numerous systems of accounting now being advocated, has to do almost entirely with this last mentioned object. It is at present a difficult and expensive undertaking to disclose the degree of intelligence, efficiency, or wisdom that has characterized each of the numerous detailed transactions of the business. The method of doing this has not yet been developed to what may be termed an exact science. This most important feature of accounting is still in the formative period. It is only possible to lay down a general rule which should be approximated, but which to my mind is not yet possible as an absolute attainment. Nevertheless, I believe it should be constantly kept in mind as the most reasonable object of accounting, to be aimed at. THE BOOKS SHOULD SHOW EACH DETAILED ITEM THAT IS WORTH MORE TO THE MANAGEMENT THAN IT COSTS TO SECURE THE INFORMATION. In this connection, it must be recognized that it is now necessary to do a certain amount of expensive pioneering or experimenting, in order to arrive at a general agreement as to what is worth more to the management than it costs to secure the information. While this pioneering period continues, a wide awake accountant must be willing to bear, and must bear a large amount of criticism, because, as in all other pioneering work, a certain percentage of the things tried out must inevitably prove impracticable. But to leave undone that 95 per cent which proves practicable, from a disinclination to endure the criticism that will be heaped up because 5 per cent are failures, would be as cowardly for the modern accountant as it would have been for Robert Fulton to have been afraid of the ridicule of those who said a steam engine would sink a ship.

It is an easy matter to show on the records of the business the degree of honesty and integrity that has been exercised in each and every cash transaction. Therefore, this feature of accounting has come to be very inexpensive. If, on the other hand, honesty and integrity were the exceptions rather than the rule, it would be as difficult and as expensive to demonstrate them by means of a set of books as it is to accomplish the modern object of disclosing the degree of intelligence, the degree of attention, the degree of efficiency, the degree of wisdom, or the amount of experience that is evidenced in each of the minute, detailed transactions of a business.

The difficulties and expenses incident to the accomplishment of this more modern object of accounting, are, we believe, due to the lack of intelligence, the lack of attention, the lack of effectiveness, the lack of wisdom, the lack of experience, the lack of a systematized record of similar performances in the past; in short the difficulties and expenses connected with the accomplishment of this object are due to the lack of a sufficient basis of fact concerning the transaction of the past, from which to formulate conclusions of value for the future. Therefore, the expense incident to showing, by means of records, the amount of wisdom behind each transaction, is more in the nature of a cost for the finding out of what is wise than a cost of recording intelligent performance. In fact it is sometimes called "policing the business."

Our actual experience, resulting from our efforts to learn what kind and what amount of detailed information it is profitable to accumulate and classify into usable form is all that we are able to contribute along the line of the subject assigned us. In studying this matter we have considered the interests of all those who could possibly be interested in the matter, namely, (1) the owners, including creditors as well as shareholders and bond holders, (2) the users of the service, (3) the workers engaged in the business, and (4) the neighboring communities (or those who are using a similar service in a neighboring exchange). As a result of this study we have reached what may appear to those who have not given the matter their mature thought to be a surprising conclusion, i. e. that in the end the interests of all persons concerned are one and the same. These interests all demand that the business be conducted along lines of equity, stability, efficiency and economy. We hope to be able in the course of this discussion to emphasize the truth and the importance of this conclusion.

We have found that it is necessary to determine first of all how often the condition of the business needs to be disclosed in a general fashion, usually referred to by big companies as a trial balance. In these days when strictest economy of operation is required, it seems to be generally agreed that it is quite important to determine results as often as possible. Most companies having large interests involved deem it practical to require statements of assets, liabilities, performance, and net results in general, monthly. Whatever period is determined upon for the rendering of these statements, it is most important that they be compiled at regular intervals and that no item involved in the organization of the business be omitted. Unless this rule is observed, intelligent comparisons are an absolute impossibility, and statements which do not furnish accurate comparisons

*Abstract of a paper presented at the convention of the Iowa Independent Telephone Association.

are not only worthless, but they are extremely harmful, because wrong conclusions are inevitably drawn from them.

In order to arrive at a basis for an outline of the accounts and records which it is considered profitable for us to keep we have made a study and comparison of the systems which are recommended by the International Independent Telephone Association's committee on uniform accounting, the Wisconsin Railroad Commission, and the system which it is said will be adopted by the Nebraska Commission. We have made an outline of these various plans which is arranged to show the similarities and the differences of these systems. The classification which has been adopted as being most adequately suited to the needs of the company with which the writer is connected, (the Corn Belt Telephone Co.), is similar in all important respects to the Wisconsin plan.

The Wisconsin plan provides that all operating accounts shall be kept separately for each exchange and the toll system and, as nearly as possible, for each kind or class of service. Also that all items of non-operating revenue or expense are carefully excluded from operating accounts. These we believe are fundamental requirements. The company must be able to satisfy those interested not only as to the operating efficiency of the business as a whole, but as to the efficiency of each integral part of the entire business. By no other plan can an equitable basis be provided for the purpose of determining rates for the various classes of service which may be offered in each exchange.

While it has generally been the practice to charge "all the traffic would bear" modified, of course, by the influence of competition, it is fast coming to be recognized that the rates for any public service must be based upon "actual cost plus a reasonable profit." It is safe to say that the public will ere long positively demand the fixing and the adjustment of rates on no other basis.

It is outside of the sphere of the accountant to determine just what a reasonable profit is, but it is clearly the function of the accounting department to furnish the necessary information as to the actual cost of producing any class of service, and the revenue resulting from that service. This is admittedly a stupendous task. Indeed such a thing has been declared to be an utter impossibility, but we are told that it is being demonstrated in a report on the Chicago Telephone Company, that it can be done. It is certainly feasible to reach a very close approximation of the items which seem to be impossible of exact distribution with ease and taken together with the items which may be distributed direct to individual accounts we will have a fairly accurate record of cost. There are numberless problems to be solved it is true, and an immense amount of careful and painstaking labor to be completed in order to get into the cost records the proper proportion of every expense and loss which is chargeable to the operation of the business. The thing of greatest importance is to make sure that no item of expense is omitted.

It is equally important from the standpoint of the owners that the accounts be subdivided so as to show the weak spots, leaks, etc. Otherwise who can tell whether or not each class of service is paying its proportionate share, or even whether some classes are not being actually furnished at a loss while others are being charged exorbitantly high rates to make up that loss? Are there any classes of service which are not developed to the highest possibilities, and which are they? Are there any leaks in the way of allowing discounts and adjustments at any particular exchange? Are the uncollectible accounts increasing or decreasing? Are any of the various expenses unreasonable as compared with similar expenses in other exchanges? Are the expenses increasing in proportion or out of proportion to the increase in earnings? Are the expenditures for construction resulting in a corresponding increase of the earnings? Are all portions of the plant being kept up to the highest state of efficiency by reason of putting the necessary expenditure into current repairs? Is the item of general expense reasonable as compared with the same item for other companies of the same size? These are only a few of the questions which the management must ask itself and answer in order to assure all those interested that the administration is being carried out on wise and efficient and economical lines.

In order that all the items affecting a company's operations may be properly included in the periodic statements it is necessary to create two kinds of accounts known as suspense or "Clearing" accounts and reserve or "Accrual" accounts. Suspense accounts are required for handling such items as insurance, stationery and supplies, directory, rents, etc., which are paid in advance of the period or periods which will receive the benefits of such expenditures. For example a company may pay $240 for publishing a telephone directory. On the expectation that the directory is to serve for 12 months the total price will be charged to the directory suspense account. Equal amounts of $20 will then be credited to this account monthly, and charged into the operating expenses for that month. Likewise reserve accounts are used for the purpose of "spreading" such expenses as interest, taxes, and similar items, which are paid subsequent to the period or periods under review, uniformly over the year's operation. By this plan only the correct proportion of any expense, actually chargeable to a given period, is included in the expense account of that period.

No one would expect us to leave the question of reserve accounts without reference to that most important but much mooted question of a reserve for depreciation. This is a matter, however, which most diplomatic writers avoid. An authority writing recently on this subject said—"Books and pamphlets are being published thereon, the best accounting thought of the country is being directed thereto, Federal and State accounting authorities are struggling with the problem and the whole matter seems at present to be in a formative state." But he goes on "Happily material progress has been made in that the fact of depreciation is now generally admitted, whereas it was formerly strenuously denied or at least ignored." And it may not be generally known, but since the above was written the first court decision ever rendered in this country on the matter of depreciation has established the necessity of providing for it year by year.

It must be plain to all that no matter how much is spent for repairs to a plant, the time will surely come when it will fail to fill the needs of the public, either on account of its decreased efficiency due to deterioration of materials with age, or on account of being rendered obsolete by the advent of superior equipment. The same authority quoted above says in this respect:

"A more important factor than wear and tear in determining the effective life of an operating asset is that of obsolescence. Buildings or machinery are seldom abandoned because they are worn out. Usually long before that condition is reached, they have become antiquated or otherwise so unfitted to cope with current requirements that their effective life is at an end, notwithstanding their actual condition may still be good. In making provision for the renewal or replacement of an asset, obsolescence, as well as wear and tear, must therefore be taken into consideration. If the life of a property were maintained merely by ordinary repairs, its value would decrease year by year until it arrived at the scrap stage, if in the meantime it had not become obsolete. Provision for renewal under such condi-

tions would be based on an estimate of effective life, which had regard only for the factors of diminishing value due to ordinary wear and tear, and possible obsolescence."

We think it will be conceded by all that the capital investment in a business must be preserved unimpaired, either in the form of real property or in the form of money. When any portion of the property representing the investment is retired from service as worthless, an amount equivalent to its original cost must be taken from the earnings and placed to the credit of the owners in lieu thereof. During the earlier years of an enterprise when the plant is new, the maintenance and renewal costs will naturally be much smaller than will be the case when the effects of its use are being felt, and if no charge is made against the profits for depreciation, there will be a virtual overstatement of profits and possibly an excessive distribution of dividends, which will have to be made good one way or another later on. If this contingency is not anticipated and the necessary amount set aside out of current earnings for this purpose when the time comes that a part of the equipment is retired from service the company must have accumulated and retained a surplus earnings sufficient to replace the amount of capital represented by such retired part of the plant.

But how can a company know whether or not it is accumulating a sufficient surplus for the purpose unless it take intelligent recognition of the fact of depreciation? And how can it show a rate regulating power that it has taken cognizance of depreciation unless it sets down the amount so recognized as a charge against the current earnings and labels it by placing it in a "Depreciation Reserve?"

It is the opinion of some that depreciation should be cared for by writing down or decreasing the plant account by the amount of the estimated depreciation. Would it not be more expedient, however, to maintain the plant account at its original cost price as long as the earning power remains the same? In other words is it not desirable that the gross earnings bear a proportionate relation to the plant account? As long as none of the units representing earning power are retired from service the earning rate will remain the same. Therefore, it would appear that the proper time to decrease the plant account is only when some of its units are actually retired from service. The Interstate Commerce Commission has provided for this, in its uniform system of accounting for railroads, by establishing a "Renewal Account." The writer would, however, prefer the designation "Plant Deductions," as that term defines the meaning of the account much more clearly, and we will therefore refer to it by that designation, as in contrast to the account "Additions to Plant."

To the account "Plant Deductions" would be charged (on the basis of original cost), the value of all property retired from service, no matter what the cause for such retirement and the "Plant Account" would be decreased by the same amount. The amount represented by "Plant Deductions" is then considered as a "loss;" first being reduced, of course, by the amount of depreciation computed up to date of retirement on the particular parts retired and set aside for the time being in the "savings bank" called "Depreciation Reserve." This loss should also further be reduced by the amount realized from the sale of junk or by the present value of any parts again returned to service. Under this plan, when a new part is added to the plant to take the place of a retired part its entire cost must be charged as an "Addition to Plant." This obviates the necessity of determining, in case the new part is more expensive than the old, how much of its cost is chargeable to maintenance and how much to betterments.

To illustrate our plan, suppose a switchboard costs a company $12,000, with an estimated life of 10 years and break-up value of $2,000. The company must then save and set aside out of its earnings $1,000 per year, placing this amount to the credit of the "Depreciation Reserve" fund. Suppose at the end of six years, however, for some reason, the company finds it necessary to replace the board with a more modern one. Upon retiring the old board we credit the "Plant Account" with $12,000, and charge it to "Plant Deductions." If it costs $1,000 to get the old board out of the way and dismantle it, we also charge that amount to "Plant Deductions." We have $6,000 to our credit on this particular switchboard in the "Depreciation Reserve." We therefore use this amount out of the reserve account and set it down as an offset to the $13,000 standing on the debit side of "Plant Deductions." We sell $2,000 worth of junk or salvage and return $3,000 worth to service at other places. We therefore also set these amounts on the credit side of our "Plant Deductions Account."

But we still have a balance on the debit side of $2,000. This amount we charge off as current expense.

Plant Account.

Dr.		Cr.	
Switchboard installed	$12,000	Switchboard retired	$12,000

Depreciation Reserve.

Dr.		Cr.	
Carried to "Plant Deductions" upon retirement of switchboard	$6,000		
		Set aside from current earnings for depreciation on switchboard—	
		First year	$1,000
		Second year	1,000
		Third year	1,000
		Fourth year	1,000
		Fifth year	1,000
		Sixth year	1,000
		Total	$6,000

Plant Deductions.

Dr.		Cr.	
Switchboard retired	$12,000		
Cost of removing and dismantling	1,000		
Total	$13,000		
		From depreciation reserve	$ 6,000
		From sale of junk	2,000
		Value of parts again returned to service	3,000
		Loss (current expense)	2,000
		Total	$13,000

The greatest advantage of this plan of adjusting the "Plant Account" lies in the possibility of compiling tangible and intelligent statements of charges (or deductions) to the "Plant Account." From the viewpoint of the owners especially, it is of vital importance that this be done. A dishonest or incapable administration could very easily and often does distort the showing of profits by charging actual expense to the "Plant Account" instead of to the "Loss Account."

When the accounts of income and outgo have been accurately "measured at their source," so to speak, it is an easy matter to combine them into their corresponding, final or main accounts, so as to furnish the information required by the original or primitive object, of indicting the profit or loss of the business as a whole. These combined or final accounts are usually termed "controlling" or "internal" accounts and are the ones which are used on the trial balance to show the final result of the entire business for the period under review. This operation is merely a mechanical one and will be understood by an accountant or bookkeeper without further explanation. The great and important fact to be borne in mind, however, is that the ultimate success of the business, as demonstrated by the combined accounts, depends upon whether or not each and every item which goes to make up the final figures is absolutely correct, and whether or not every proper item has been included therein.

Protection is an important function of any adequate accounting system of today, and a system which will not detect "sneak currents," and give warning of their presence by lighting a signal or ringing a bell, or both, so to speak, is lacking in a very vital particular. We use the term protection in its fullest sense, that is, protection which will protect the worker as well as the owners for whom he works. The railway conductor who is strictly honest is not only willing, but is anxious, to carry cash fare slips and issue receipts for all cash fares he receives, because it is only by doing so that he holds himself above all suspicion. Because such a thing as dishonesty exists among possibly 5 per cent of all the conductors in the country all the other 95 per cent must come under the same rule and account for their receipts. And experience has shown that graft and dishonesty to a certain extent exist in every walk of life. For this reason the accounting system must be furnished with safeguards which will protect the property of the company and the integrity of the workers.

Safeguards are needed, for instance, to insure that all material issued to an exchange is properly accounted for by being reported when used in a form giving the exact place where it is used. Otherwise the opportunity exists for selling it without making returns to the company's treasury. It should be an unpardonable sin for any employee to sell any of the company's property without making a sales invoice covering each sale. So much of a telephone company's property is movable and easily convertible into cash that safeguards along this line are most important.

Another place where a safeguard is needed is in the matter of accounting for instruments charged to an exchange. An exchange manager should be required to account for all instruments charged to his account, and unless he can show an instrument on hand out of service he should be required to show returns from it in the earnings. Otherwise a dishonest manager might easily furnish service and place the charges which he collects for it in his own pocket, and no one be the wiser. Likewise all discounts and rebates must be just as carefully accounted for as cash disbursements, for such allowances are just as surely deductions from the company's treasury as if they were actually paid in cash. There are numerous other places where protection is required that will be apparent to the wide awake business manager and must be safe guarded in the same way as in the cases mentioned.

There is one feature of the modern object of accounting which we have found to be exceedingly difficult of accomplishment because of the lack of wisdom, the lack of attention, the lack of concentration, and efficiency on the part of those who should be best informed and most efficient as regards the information which this branch of accounting covers. Because of this very lack of experience, attention and efficiency we have considered this one of the most important things to be accomplished. We refer to the records which indicate what is usually called "Unit Costs," by means of which a record is kept to show the average cost of doing the various items of work such as digging holes, setting poles, installing telephones, etc.

Whether, for the management to know is worth more than the expense of finding out what it costs on an average, or on each day separately, for each man, or crew, to dig holes, to set poles, or to do any other distinct class of work, is possibly a matter for some department other than an accountant to determine. Therefore we will not attempt to discuss that particular feature. We do, however, call attention to the fact that the opportunity for the accountant to show by his records the degree of wisdom exercised in connection with expenditures of the sort indicated, depends entirely upon the accuracy of the knowledge of the man responsible for each particular item of expense. If we might use the language of the street, we would say that if the individual responsible for each of the several such items of expense "is wise" to the facts as to costs the expense of showing the individual's wisdom on the records is very small indeed. Attempts to show in the accounts the details of costs of the kind indicated are frequently opposed by the individuals of the organization. This opposition almost always proceeds from the false assumption that accounting for such details is expensive. We can agree that obtaining reliable facts concerning such details is expensive, but it is the process of "getting wise" to the facts concerning the expenditures that causes expense. As soon as the man who is responsible for the expenditures is sufficiently "wise" concerning the expenditures made under his management, to say definitely the cost of each of the several items, ninety per cent of the expense usually objcted to has been incurred. To get the man's definite knowledge on paper, and into the accounts costs less than one-tenth of the total expense usually held up in the argument against detailed accounts.

To illustrate: if Construction Foreman Brown is able to say to you from an absolutely reliable basis that it cost him last year on an average of 35 cents each for digging holes for 300 miles of toll line construction, the cost of indicating in the accounts his wisdom concerning this matter would be so small as to almost escape mention. But if, on the contrary, Construction Foreman Brown had built 300 miles of toll line, and when you asked him what it cost on an average to dig holes he would answer in the ordinary fashion, "I have a general idea, but I never attempted to figure the individual or average cost per hole;" and you should then tell him to make an estimate in advance as to what it would cost him on an average for each of the various items of expense for a given 10 miles of certain construction, explaining that you proposed to take his estimated average costs, apply them to the number of units or number of such work performed, arrive at a total in accordance with his estimate, and then contrast the total of his estimate with the actual cost and show him the percentage of accuracy or error of his judgment or wisdom; and he should begin to sidestep and refuse positively to make an estimate on any one thing, explaining that it was "too deep" for him, you would have a very fair average picture of where the cost comes in, in connection with the various efforts to show by an accounting system, the degree of wisdom exercised in the expenditure of funds. It is because the degree of wisdom is so small, that the cost of finding it is so large, but when the wisdom or lack of wisdom is once found, the cost of showing it in the accounts is very small.

This branch of accounting has revolutionized modern factory methods, and is of great value in any organization. It is the only means of determining whether or not the company is getting a dollar's worth of service for each dollar of expenditure. It is the only means for securing a basis of information for estimating the cost of contemplated work. It is the only means of determining efficiency and effectiveness of the workers. This does not imply that this plan works any hardships upon faithful and deserving employees; for the efficient workers will be benefited by reason of the demonstration of their efficiency. And because of the incentive to securing recognition of their efficiency and making it possible for them to advance themselves to more remunerative positions, it is an actual aid to those who are less efficient.

In closing we have only time to call attention to that feature of the telephone business which we consider to be the strongest argument in favor of voluntary uniform accounting by telephone companies. We refer to that feature whereby a community or exchange unit is so closely in touch with its neighboring communities as to make it a

necessity either to charge uniform rates in all exchanges or to show clearly the reason for any difference in rates. This is only one reason for uniform accounting. Other benefits would be obtained by reason of having a common basis for the discussion of practical problems of economy and efficiency and for reaching valuable conclusions by means of contrasts and comparisons. If a Public Utilities Commission is created in this state, the first thing it will do will be to require uniform reports from every company in the state. Would it not therefore be wise to anticipate these future requirements by lining up immediately so as to have a basis for comparisons between the records of the present and the records of the future as they will probably be required kept by a commission?

Types of Underground Cables in France*

By M. Bazille

Ingenieur-en-Chef, Chef de Bureau, Paris.

In 1889, when the French government took over the telephones, all the underground lines were carried in cables, insulated with gutta-percha, with two to 14 conductors, some in a lead sheath, and some without such outer covering. The increasing development made it necessary to use cables with larger numbers of conductors. Experiments were made with different types of insulation, but since 1894 there have been used only paper insulated cables, arranged to permit the circulation of dry air. Diameters of conductors vary, according to the type of cable, from 1 millimeter to 2.5 millimeters. In exceptional cases, diameters of 3, 4 and 5 millimeters have been used to extend long aerial circuits to large towns.

The quality of paper is tested by means of tensile tests upon new strips, and upon strips taken from cables after they have been made up. A new band, tested in lengths of .33 meter, should support without breaking a weight of 4 kilograms per gram of its weight per meter of length. When soaked for 24 hours in water at the temperature of the air, and then dried in the open air, such a band should still support a load of 3.5 kilograms per gram of its own weight.

Cables are made up of pairs having the two wires distinguished by papers or threads of different colors; the same process is employed to distinguish the pairs; the larger cables are laid up in layers twisted in alternate directions.

In tests for mutual induction, the conductors must satisfy the following conditions: On open circuits, one kilometer long, it should be impossible to perceive, by means of a receiver connected to any pair, words pronounced in a very loud voice into a sensitive transmitter connected to one pair. A prescribed method indicates the effectiveness of circulation of dry air under a pressure of 1.9 to 2.1 kilograms per square centimeter.

Drying Out Cables.

When a cable is laid, splices provided with valves are placed at convenient points, to permit the introduction of dry air, either immediately after laying, or later on, when the insulation becomes accidentally lowered. A pump draws the air through dissicators filled with chloride of lime, and forces it into the cable under pressure.

Except in the exchange systems of Paris and Lyons, where the cables are all underground, and utilize the sewer canals, the distribution is generally mixed, partially aerial and partly underground.

Cables of variable capacity connect the central office with junction points for aerial routes, placed in the centers of districts limited by various considerations, among which is the advisability of avoiding crossing trolley lines with aerial wires. From the central office cables of 224, 112, and 56 pairs lead out to manholes at a greater or less distance, where subdivisions are made to carry the circuits to subscribers' stations through a larger number of cables of diminished size.

Protection Against Electrolysis.

In sections near electric traction lines, electrolytic corrosion of the lead sheaths of underground cables occurs wherever the sheath is positive to the rails, or to other nearby underground conductors. The soil acts as a resistance shunted by an electrolytic bath. Consequently, a part of the stray currents pass by conduction, the rest are dissipated in electrolytic actions.

Observations made by different experimenters show that the proportion of these currents which returns through the soil hardly falls below 12 to 15 per cent of the total current when the rails are perfectly bonded. With badly bonded rails this proportion is greater, and may rise to 60 per cent.

The disturbances produced seem to follow capricious laws, which it is difficult to formulate, the nature of the soil about the rails appearing to exert an excessive influence upon the diffusion of currents. In moist earth the attack upon the sheath is much more powerful than in dry ground. Moreover, the location of the electric railway power plant, and the number and location of other metallic structures which are buried in the ground, have such an importance that the least modification of these conditions changes completely the distribution of potentials.

An attempt has been made to reduce the intensity of currents circulating in the sheath by cutting the lead at places, to interrupt its continuity. This is done by removing a ring of lead about one centimeter wide, and covering the gap with paper over which is laid a wrapping of tarred cloth. This part of the cable is then laid in a trough about three meters long, with the cut at the middle, and the trough filled with insulating compound.

Experience has shown that this device, employed without other precautions, serves only to aggravate the damage, by distributing the points of electrolytic erosion; the stray currents passing from one section of cable to another through the surrounding soil.

Attempts have also been made to entirely isolate the cable from the soil in dangerous zones, by enclosing the whole cable in such a zone in a wood trough filled with insulating compound. This plan, too, has failed. It concentrates the action at points where the currents leave the cable, and there produces serious damage. Finally, to facilitate the flow of current back to the power station, the cables in its vicinity have been placed in metallic ducts, in close connection with the soil, intended to bear the entire damage from electrolysis, constituting means for diverting all stray currents from the cable sheath.

At one particular electric railway crossing a main cable

*Abstract of a paper presented at the first International Conference of Telegraph and Telephone Engineers.

was exposed to very destructive electrolytic influences. About a year ago the cable was therefore insulated, as above, for a distance of about 500 meters through the danger zone of the crossing. A ring of lead was removed from the sheath near each end of the insulated portion. At each point of leaving the insulation the cable was fitted with a metallic sheath composed of 20 meters of lead tubing amply soldered around the cable and wrapped thickly with iron wire to ensure good contact with the soil.

Before these sheaths were fitted the difference of potential between the cable (+) and the earth (—) was from 4 to 6 volts; this has practically disappeared since the treatment described above. Further trouble beyond the insulated portion has shown that it will be necessary to extend the insulation to a greater distance in one direction; apart from this the method appears to have effected a satisfactory cure.

Another system tried at another point of rapid deterioration consists in employing a cable, the sheath of which is insulated by a wrapping of paper eight millimeters thick, surrounded by waterproof canvas and protected by a wrapping of galvanized steel ribbon of the same thickness. The whole is enclosed in moisture-proof braiding. The cable has been in use for a year with no signs of deterioration.

Letters on Practical Subjects

A Cable Test Set.

To do good cable work one of the most essential things is good testing apparatus. More time can be gained by the use of a good cable test set than by any other tool or piece of apparatus comprised in the working outfit of a cableman.

In devising a cable testing outfit many things are to be taken into consideration. It should be so designed that it can be used equally as well on new work as on old or "live" work; it must be small and compact, and as light in weight as possible; it must be simple in construction, and above all things it should not have any complicated adjustments, and should be capable of withstanding all kinds of abuse.

Such a set has been designed, built and thoroughly tried out, and it is the purpose of this article to so describe the set that any cableman can build one for himself.

Reference is made to Fig. 1, which shows the complete circuit and apparatus. In order to equip a set according to this diagram one requires a pony telegraph relay, an induction coil, a condenser, two 2-point, wood base switches, and two sets of battery. One set of battery and one of the switches can be omitted if necessary, as the second set is an auxiliary, intended for use when the first set becomes weak. It has been found, however, that the second set is a very desirable feature. The most suitable battery is a dry cell, such as the O. K. No. 2, the Columbia No. 4, or some similar type.

Assume that a man wants to use this set on new work

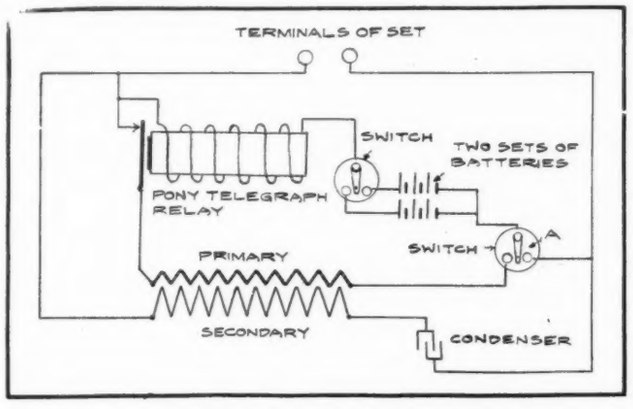


Fig. 1. Diagram Showing Apparatus and Circuit of a Simple and Efficient Cable Testing Outfit.

where he can short-circuit, ground, cross, or bunch wires in any manner he sees fit. He throws switch *A* to the right, thus putting battery in series with the coil of the relay, so that every time a short-circuit is placed across the terminals of the test set the relay will close and click. This test will work through the resistance of a very long cable.

If a man simply wants to use battery and a receiver, as is often the case, he does not have to change the set in any way but proceeds the same as though he were going to use the relay on an open and closed circuit, the battery being on the terminals of the set.

Fig. 2. The Cable Test Set Ready for Use.

Now consider the case when the set is to be used on "live" work, or working common battery cables. Here it must be capable of producing a hum, or tone on the particular wire under test. In this instance, throw switch to the left, causing battery to flow through the relay and close the armature. When the armature closes it opens the battery circuit at the relay contact, and this causes the armature to release or open, with the result that a continuous vibration of the armature is set up, making an intermittent current in the primary of the induction coil, which

in turn induces a current in the secondary. One side of the secondary of the induction coil is connected in series with a condenser, from the other side of which a wire is carried to one terminal of the set. This puts the hum or tone on the terminals of the set, and it is then used as a tone test. It should be noted that the contact point of the relay is used for a purpose exacly opposite to that of the telegraph relay. That is, in the tone test when the armature is closed the contact is broken, while the reverse is true in a relay used for telegraph work.

A very desirable feature of this set is that by simply increasing or diminishing the tension of the spring on the armature of the relay, a high or low pitched tone can be produced, so that any kind of a tone wanted can be had.

Fig. 2 shows the complete set in the case. This case can be made of ½-inch hard wood, the outside dimensions being 6½ x 6½ x 9-inch. The set weighs less than twelve pounds. The bottom should be put on with four screws, so as to permit of its being easily removed when new batteries are to be installed. The wiring of the set should be of small electric light cord, or some similar wire.

A fairly good test set can be made up with a buzzer in place of a relay, but a buzzer will not work through so long a cable as a relay, and then, too, when a buzzer is used continuously to produce a tone it runs the battery down very rapidly.

In some cases a clockwork has been used to make and break the circuit through the coil, to produce the tone, and in this way prolong the life of the battery, but this is rather inconvenient because the clock has to be wound frequently, and causes considerable loss of time in the middle of the test. Also, clockwork will not stand the rough usage the average cableman is liable to give it. In the clockwork, as well as the buzzer set, the tone always remains the same, while in the relay set the tone can be changed to any desired pitch.

The relay set, when properly made, cannot be equalled and one will be surprised at the amount of work which can be done with it, and the extremely small amount of battery required to operate it.

The set is not only used as a cable testing set, but can be employed to good advantage about any central office in various ways.

Syracuse, N. Y. Robert M. Gillespie.

A Portable Howler.

A very handy thing to have on the test desk in a common battery office is a jack, with an ordinary battery buzzer bridged across the tip and ring springs. The jack and buzzer may be fastened together and for this purpose tape will do very nicely. By inserting one cord of a pair in the buzzer jack and the other cord in the jack of a line carrying an instrument at which the receiver has been left off the hook, a very loud, piercing "howler" effect will be produced at the subscriber's station. With a six to ten ohm buzzer on 24 volt battery the howler will be heard distinctly in any part of an ordinary room.

Of course the buzzer could be permanently wired into any jack on the test desk or switchboard, or even cut in on a cord, but it will be found to be handier to be able to use it at any position on the test desk or switchboard.

By the way, did you ever try ringing out on your receiver "shorts" on party lines? You probably will not be able to attract the attention of the subscriber at the station where the receiver is off, but if you can call another party and hear him fairly well and the line is quiet, you are doubly sure that it is a receiver "short."

Chicago. L. A. Bartholomew, Jr.

Before Courts and Commissions

By A. H. McMillan

Need City Franchise in Indiana.

This company is operating a toll line through a small incorporated city. We have no franchise in the city but a county franchise. The line was allowed to be built by common consent of the city several years ago, and has been kept in good repair. Now can the city compel us to obtain a franchise or remove the lines?

We think the city cannot compel you to obtain a franchise at this time. In Indiana, telephone companies have the right to use the streets and highways of the city for their business. Under such statutes, it is held that telephone companies have the right to construct their lines along the streets and public highways of municipalities without the permission of the city authorities. See the numerous cases cited in Section 56 of McMillan on Telephone Law, examples of which are: Village of London Mills vs. White, 208 Ill., 289; 70 N. E., 313, and Zanesville vs. Zanesville Telegraph and Telephone Company, 64 Ohio, 67; 59 N. E., 781.

Is the Fall of a Guy Wire an Inevitable Danger?

In the case of Neal vs. Wilmington, etc. Ry. Co. (58 Atl. 338), the damage resulted from the fall of a wire used to support a trolley wire. In its fall the supporting wire became charged and injured a pedestrain. In that case the company received notice that the wire was down and failed to protect the public against it. It was the latter feature of the case that rendered the company liable. In all trolley wire cases where the trolley pole breaks the wire, the company labors under a presumption of negligence. Unless this presumption is rebutted by the company, the injured party may recover. This applies, even though the wire may have been perfect in ever particular and fell only because of the stroke of the trolley pole. This is merely an extreme application of the rule that companies must exercise a high degree of care and maintain lines in a good and safe condition, Chattanooga Elec. Ry. Co. vs. Mingle, 103 Tenn. 667 In that case the defense set up the rule that "those who go on a highway may well be held to do so subject to their taking upon themselves the risk of injury from inevitable danger, where carelessness cannot be charged upon anyone."

It is interesting to see what view the court took of this defense, and of trolley pole strokes on trolley wires. Commenting on this, the court (Beard, J.) said: "But was the fall of a dangerously charged guy wire an inevitable danger? That it was unexpected is no doubt true; but many accidents occur from defective mechanical contrivances which, though not anticipated, are by no means inevitable, because they might have been avoided by the exercise of care corresponding with the danger attendant upon the contrivance. In the case at bar the guy wire, charged as it was with a heavy electric current, was suspended over a street crowded with persons passing at all times of the day, was intrinsically dangerous, yet the risk of accident therefrom was not inevitable. If the wire was made of good material and was properly attached above and below, and

then carefully supervised, there was no inevitable danger incident to its suspension above the street. If, however, the wire were imperfectly constructed or attached, or, if properly attached in the beginning, it was neglected for a period of time sufficiently long for expansion or strain upon it to weaken the attachments, then it did become a menace to the public, and the company, being guilty of the negligence which contributed to this condition, was responsible for the damage proximately resulting therefrom. It is common experience that in propelling a car, the trolley will sometimes slip from the wire along which it is passing, and, if in so doing it comes in contact with a guy wire, it is apparent that the latter should be of sufficient strength and fixity to withstand the violence of the stroke, and if it fails to do so, it is not an unreasonable inference that there has been negligence in its construction, selection, or supervision."

House Moving in Washington.

The ruling of the Seattle city department of public utilities requiring persons moving houses to compensate public service corporations for removing wires in order that the buildings may pass along the streets, was overruled in the superior court of that city, when Judge Gay directed that a writ of mandate issue compelling the city to give a permit to H. K. Ball or his assigns for the moving of a residence valued at $3,000. Ball alleged that a city regrade had made it imperative that he move his house, which he was unable to do unless telephone, telegraph and trolley wires were removed. He said that the state law, the city charter and the city ordinances specifically provide that public service companies must remove their wires, at their own expense, when it is necessary for the free passage of a house through the streets. He contended that until July, 1908, the corporation had done this, but that at that time they conspired with the Board of Public Works, which then exacted payment and refused Ball a permit unless he agreed to reimburse the companies. The plaintiff declared that he had applied for a permit July 19 and paid the fee of $10, but that it was August 3 before the board acted. He testified that his application had met with the approval of the street department and the city building department, but that the department of public utilities had refused to concur on the ground that it would entail an unjust expense upon the public service corporations. Ball said the Board of Public Works found that the companies were entitled to compensation for raising or lowering their wires, and refused the permit. Ball then applied to the superior court for a writ of mandate compelling the city to grant the permit. This rule is contrary to the decisions of courts in most states that have passed on the subject.

Pioneer Company Will Carry Commission Case to Highest Courts.

City Attorney Twyford of Oklahoma City, has been served with a copy of the Pioneer Telephone & Telegraph Company's appeal to the Supreme Court from the decision of the corporation commission in which the city's contentions in the controversy were recently upheld and the company fined $100 for raising rates without first obtaining the commission's consent.

The telephone company's appeal is based upon the constitutional provision giving corporations the right to appeal from the decisions of the commission. The hearing will be had at an early date in accordance with a provision of the constitution which authorizes the advance on the court calendar of all appeals from the decisions of the corporation commission.

It will be remembered that the Pioneer company obtained a franchise from a former city council of Oklahoma City which empowered the company to increase its rental charges when its list of local telephone subscribers reached 5,000. Claiming that its list had reached that number the company gave notice early last spring of a raise in prices. Then came a protest from both the city and individual subscribers. The list was counted, and, according to the contestants, the company did not have the required 5,000 subscribers. It was found that included in the list and counted as telephones were several hundred extension telephones or trunk lines connected with private branch exchanges. The question as to what constituted a telephone then arose, the local subscribers insisting that the trunk line telephones were not telephones as contemplated by the terms of the company's franchise.

The city attorney also contended that the council granting the franchise was without authority in the premises. To add to the complications, a subscriber, the Burrows Oil Company, raised the point that the telephone company had violated an order of the corporation commission in that the commission's consent was not obtained before the rates were raised. In this City Attorney Twyford joined, and when the commission passed upon the case a fine of $100 for one day's violation of its order was assessed by the commission against the telephone company. The commission also held that the city council granting a franchise had exceeded its authority, besides sustaining the city in its contention that a trunk line did not constitute a telephone.

Accounting to Liability Insurance Company.

Seeking to recover the amount due as premiums under several policies of employers' liability insurance, the London Guaranty and Accident Company brought suit against the Bell Telephone Company of Buffalo for an accounting in equity as to the telephone company's acts, dealings and transactions in respect to the amount of pay-roll for the years 1897 to 1902 inclusive. The insurance policies gave the insurance company the right to examine the books of the telephone company to ascertain the wages paid to its various employes, so that a correct basis of the premium charge might be had. The telephone company demurred to the bill of complaint on the ground that the complainant had not stated such a cause of action as to entitle it to maintain its suit. The United States Circuit Court for the Western District of New York sustained the suit, holding that it was a necessary inference that the accounting would be complicated, and hence sustainable in equity. London Guaranty & Accident Co. vs. Bell Telephone Co., 171 Fed., 278.

A Case for the Jury.

In an action for damages brought by a lineman of the Cumberland Telephone & Telegraph Company against that company, the Home Telephone Company, the Hattiesburg Traction Company, and the City of Hattiesburg, the Home Telephone Company demurred to the plaintiff's declaration on the ground that inasmuch as the declaration had alleged that the Home company's wire was in itself harmles, it devolved upon the plaintiff to show how it became dangerous. The Supreme Court of Mississippi reversed the action of the Forrest County Circuit Court in sustaining the demurrer, holding that the declaration in alleging that the Home company had constructed its line without due regard to its proximity to the high voltage wire of a traction company, and had failed to properly insulate its wires, stated a cause for action. The case was held to be a proper one for the jury.

Barry vs. Cumberland Tel. & Tel. Co., 57 Southern (Miss.) 69.

Answers to Practical Questions

Subscribers may submit for answer in this department any questions on practical telephone topics, such as construction, circuits, electrical theory, troubles, operating, traffic, costs, records, business methods, etc.

The answer to each question will be furnished by a man recognized as expert in that particular branch of telephony.

In case the answer cannot be published it will be forwarded by mail. No charge is made for this service, and subscribers are encouraged to consult us freely and frequently.

In every case a thoroughly complete description of local conditions is required to insure a satisfactory answer.

Transposition of Circuits.

Between *A*. and *B*. we have two metallic circuits, one No. 9, the other No. 12 iron. The distance between *A*. and *B*. is 3½ miles. The wires are 50 feet from a track which is to be

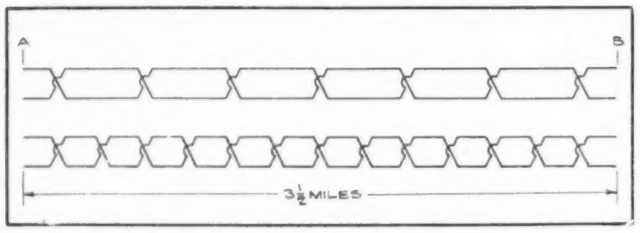


Fig. 1.

changed to electric road. Please show how to transpose the lines described above.

Divide off into ¼-unit spaces and transfer as shown in Fig. 1.

Sparking at Pole Changer Contacts.

I have a pole changer and use a 16 C.P. lamp in a 110-volt circuit to prevent sparking at spring contacts. I cannot ring all my subscribers on long rural lines unless I take this lamp out, and then they ring strong. I also note that my pole changer acts the same as your article appearing in TELEPHONY of September 4, 1909, on page 239. Kindly let me know what kind of a buzzer I should use in this circuit to prevent the hearing of ringing of other lines, and what I should use to prevent sparking at spring contacts of pole changer.

Use a special ringing relay which has low impedance normally, but when ringing on short, low resistance lines will pull up and cut in sufficient extra resistance to avoid heavy sparking. The use of a condenser of suitable capacity bridged across the pole changer A.C. terminals will help. The exact capacity is to be found by trial. It will be less than .25 M.F.

Operating Listening Key Interrupts Connections.

I have a case of trouble that I am unable to locate and ask your advice.

The case is: We have a 100 drop magneto board and for some little time it has been cutting out—that is, when there are two or more connections up if the operator turns a listening key it cuts off every connection, and the board seems to be "dead" so far as any sound of battery is concerned. For instance, a connection from 23 to 53 and another from 46 to 92 are up. When the listening key is thrown on 29 and 53 to see if they are still talking, it cuts off 46 and 92, so their telephones are dead. And so far as I can see it is just so all over the board. However, sometimes it will not bother for several days, then it sems to come on all at once.

This trouble may be the result of either of the two following conditions: Look for a listening key contact which does not break away, and a reversal in the operator's listening circuit between keys. If not found write again, and tell us if the trouble comes on metallic lines or only on grounded.

Pulsating Current Relay.

Could you give me, in your Query Department, the principles involved in the construction of a relay which responds to pulsating, but not to alternating current?

The relay to which you refer has a heavy armature and is polarized. Hence alternating current tends to make it vibrate back and forth, which is prevented by its inertia. Direct or pulsating current will succeed in moving the armature to the limit, since all the pulsations tend to drive it in the same direction, and the weight of the armature prevents it from falling back between pulsations.

News of the Week

INTERNATIONAL CONVENTION, AUDITORIUM HOTEL, CHICAGO, DEC. 7, 8, 9.

Texas Convention, Dallas, October 28; Illinois Convention, Decatur, October 27-28.

Death of Milo G. Kellogg.

Milo G. Kellogg, the founder and president of the Kellogg Switchboard & Supply Company, died at his home in Chicago last Sunday, September 26. He had been in comparatively poor health for some years. One of the saddest thoughts which arises in the minds of those who have been familiar with his great life work is that near its end he was unable to enjoy active participation in the affairs of the company since his control was restored last spring.

Mr. Kellogg was born sixty years ago at Rodman, New York. Soon after graduating from the University of Rochester, in 1870, he joined Elisha Gray and E. M. Barton in conducting a shop for the manufacture of electrical apparatus. In 1872 they organized the Western Electric Manufacturing Company, which eventually made arrangements for the exclusive manufacture of telephones under the Bell patents. The Western Electric Manufacturing Company was succeeded in 1882 by the Western Electric Company, of which Mr. Kellogg was general superintendent for several years. In 1885 declining health forced him to retire from the pursuits which his disposition had caused him to follow so actively, and he spent about two years in Europe.

While there he found opportunities to make a careful study of conditions, and ascertained that the telephone was not appreciated, and that there was a great field for its expansion if proper methods of manufacture and development could be introduced. He started at Antwerp a factory for the Western Electric Company, which has since grown to be a very large establishment, and to his work is traced the beginning of what is now a large foreign trade.

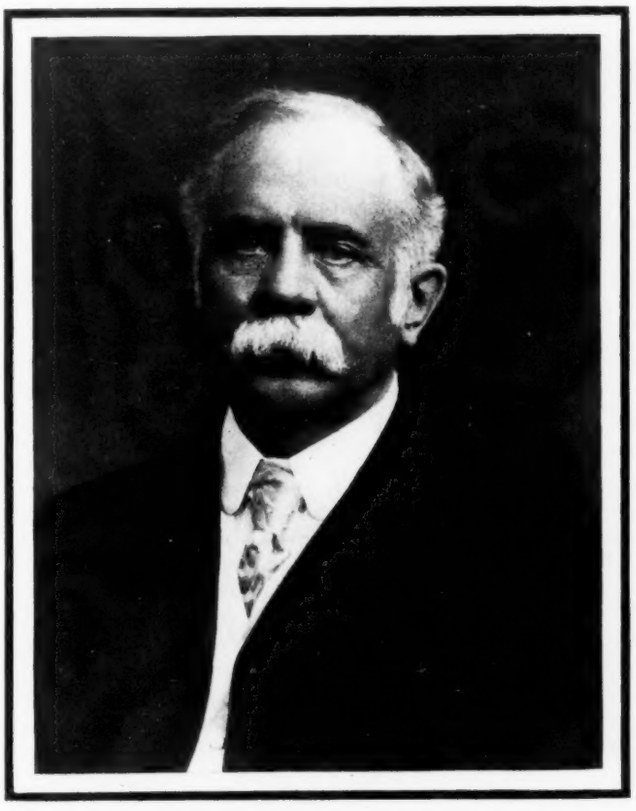
During his connection with the Western Electric Company, Mr. Kellogg was extremely active not only in de-

veloping telephone exchange circuits and apparatus, but in matters affecting the general policy of the Bell telephone organization. He took a prominent part in the organization of many companies operating under licenses from the Bell Telephone Company in the Middle West, and was a director in the Central Union and Great Southern and other operating companies.

At a very early period he conceived the idea that telephone service would be of immense utility to the public, and would reach its highest value if widely and intensely developed. This conception, which was not wholly supported by persons in authority in the early Bell organization, is undoubtedly largely responsible for his ultimate separation from the interests with which he had so long been allied.

Soon after Mr. Kellogg's return to this country, in 1887, he began to file applications for patents upon telephone circuits and apparatus. It is apparent that he soon conceived the idea of starting a large telephone factory upon the expiration of the fundamental Bell patents. His personal efforts were the means of inducing President Harrison to authorize the attorney general to bring suit for the cancellation of the Berliner transmitter patent. This was actually brought under the Cleveland administration, and, while the patent was not annulled, the results obtained furnished a basis for later action, by means of which the patent ceased to be an obstacle to Independent progress. This patent was before issue held for fourteen years in the United States patent office and had it been broadly sustained would have prolonged the Bell monopoly to the year 1908.

By the year 1895 Mr. Kellogg had filed applications for



Milo G. Kellogg.

a very large number of patents. While intending to organize a factory, he suddenly learned in 1897 that an Independent telephone company had been formed at St. Louis and was planning to erect, at once, a large exchange. Mr. Kellogg appeared before the directors and presented a proposition. At this time he had no organization, no shop drawings, no factory and no financial backing. The character and reputation of the man were shown when he secured this contract. He took Elisha Gray's old shop at Highland Park, Ill., got together men and materials, and designed and built in St. Louis a central office which was the largest which had ever been built at that time in this country, and had a capacity greater than that of any exchange which had ever been installed in the entire world.

Another significant point is that by the time this job was finished his organization was well developed and working in thorough harmony. It is an indication of his ability as an organizer that the men whom he chose to assist him in his early work—men such as W. W. Dean, Francis W. Dunbar, Kempster B. Miller and J. B. Edwards—are those who advanced with the company and the inudustry, and are leaders of today.

During the entire period of Mr. Kellogg's active association with the company, methods of manufacture and engineering practice were rapidly advancing. Between the signing of a contract and the manufacture of equipment the making of new inventions might introduce possibilities for improvement. In one week Mr. Kellogg was granted 125 patents, the largest number ever issued at one time to any person. Nearly two thirds of the Patent Office Gazette of Oct. 26, 1897, is devoted to these patents. Mr. Kellogg was always on the alert to give customers the advantage of such opportunities, and his standing was such that changes of this character involving departure from contract were accepted without question. His word was sufficient guarantee.

The men who have been associated with him intimately in the building up of the great business which he left praise his great enthusiasm for the extension of telephone service, his wonderful ability as an organizer, his shrewd business judgment, his capacity for acquiring and retaining in his memory knowledge on the thousands of points of detail which came before him, and, above all, his absolute honesty.

Program for Texas Convention.

Oct. 28 is the day, and Dallas the place for the beginning of a convention of Texas Independent telephone men which will be the occasion for a pleasant reunion, and valuable discussion of business matters. The meeting will be held at the same time as the State Fair at Dallas, and the Fair Association has given notice in all its catalogues that Oct. 29 is to be known as "Independent Telephone Day." The announcement by President D. A. Walker, of San Antonio, states that the convention will continue until all business is transacted.

Following is the program for the meeting:

Address of welcome, by Hon. S. J. Hay, mayor of Dallas.

Response, C. A. Pike, Ft. Worth.

"The Telephone Situation, Past, Present and Future," by President D. A. Walker, San Antonio.

"The Vital Importance of Furnishing Good Service," by Leon Spencer, Gainesville.

"Telephone Legislation," by J. B. Earle, Waco.

"Switchboard Maintenance," by Fred S. Eaton, Waxahachie.

"Cable Distribution," by W. P. Johnson, Corsicana.

"Diplomacy and System as Money Winners," by E. M. Chamberlain, Greenville.

"Telephone Securities," by C. A. Shock, Sherman.

Report from delegates to national convention, by C. W. Emmer, Beaumont.

"The Situation in Dallas," by J. C. Casler, Dallas.

An open invitation to attend this meeting has been extended to all persons in the state who favor the progress of the Independent telephone industry.

Independent Company at La Crosse a Winner by Merger Agitation.

The character of public comment on the telephone situation at La Crosse, Wis., is decidedly favorable to the Independent Telephone Company since the plan of a few large stockholders to force a sale to the Wisconsin Telephone Company was blocked.

The Sept. 14 issue of the *La Crosse Tribune*, under the heading, "Bell Telephone Company Withdraws Offer in Face of Certain Defeat of Plans," printed the following:

"Feeling unfavorable to the sale has been given expression by citizens for several days, but to-day the antagonism to the return of monopoly began to crystallize and the sentiment took on a decidedly unpleasant mood. The effect was to convince the proponents of the sale that, after all, they might be making a mistake, and it is now freely predicted that they will soon drop the idea. Even if they do not, they are beaten, for enough stock to prevent the sale is already pledged."

The same issue contains an editorial comment, which reviews the situation soundly from a public standpoint. The article says:

"La Crosse had a light monopoly; then it had competition for a time; now it again has a monopoly.

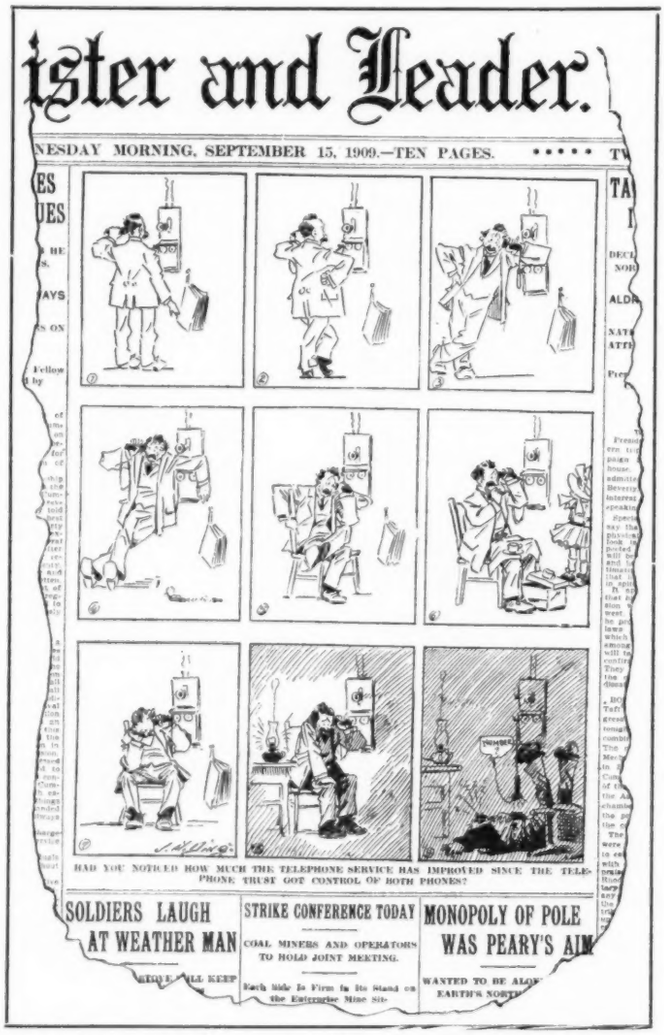
"La Crosse had a telephone monopoly; then it got competition, as it has now; it is now to be decided whether to have the monopoly again.

"Do you like the light monopoly? Will you like the telephone monopoly any better? Do you remember when we were in the hands of that same telephone monopoly, the Bell company, before?

"As a concluding thought, we venture the prediction that within ninety days of the establishment here of a telephone monopoly, the company will appear before the state commission asking permission to raise the rates on both business and residence telephones.

"The stockholders of the Independent company have a right to sell, but it would seem that they are in honor bound to sell to their own allied interests instead of to a competitor. The people of La Crosse, while asking no odds of the selling faction of this company, expect such ordinary fairness as costs nothing, in the protection to them of the competition to secure which their council granted the franchise now being dickered with."

The agitation which took place at the time of the sale brought clearly before the public the question of the benefits of competition, and also showed that the Independent company had been a money maker for owners of its securities and would continue to be so.


ister and Leader.

NESDAY MORNING, SEPTEMBER 15, 1909.—TEN PAGES.

HAD YOU NOTICED HOW MUCH THE TELEPHONE SERVICE HAS IMPROVED SINCE THE TELEPHONE TRUST GOT CONTROL OF BOTH PHONES?

SOLDIERS LAUGH AT WEATHER MAN

STRIKE CONFERENCE TODAY

COAL MINERS AND OPERATORS TO HOLD JOINT MEETING.

MONOPOLY OF POLE WAS PEARY'S AIM

WANTED TO BE ALON EARTH'S NORTH

The Result of the Merger of the Competing Telephone Companies at Des Moines, Ia.

At the time some of the large holders desired to sell the propositon was placed before small holders in such a way that they were free to assume that some reason connected with the property was the basis for selling. As a matter of fact, reports of the company's condition indicate that it is now on a basis of paying 6 per cent dividends on common stock, 7 per cent on preferred stock, and that a depreciation reserve amounting to 7 per cent of the cost of the plant is being annually laid aside.

Mr. W. F. Goodrich, who is secretary, treasurer and manager of the company, spent two days in making calls on the stockholders explaining the condition of the company. Mr. E. H. Moulton, president of the Tri-State Telephone & Telegraph Company and of the International Independent Telephone Association, also went to La Crosse and explained the significance of the Bell proposition, as was stated in last week's TELEPHONY.

The net results of the agitation has been to prove that a vigorous appeal to the public and the minority stockholders, when they are sufficiently strong in the company, by a man who thoroughly understands the telephone business, will insure the continued Independence of a company which is managed well enough to be a profitable proposition; and also that the Independent company has been so extensively advertised in La Crosse that it is sure to continue, as heretofore, the leader in the telephone business at that place.

Extensive Improvements at Indianapolis.

Within the past six months the Indianapolis Telephone Company has spent over $100,000 in improving and extending its plant, says a report from that city. This includes a new exchange building, automatic switches, underground and aerial construction on the east side capable of accommodating 2,500 subscribers. The company has also extended and enlarged its equipment on the north side and in North Indianapolis sufficiently to take care of all telephone service required for an indefinite period. A new automatic substation is being constructed in the western part of the city which with the new cables already installed on the south side, will put this company in position to take care of the telephone needs of the entire city.

The company has over 14,000 subscribers connected with its exchange, and is said to be taking new contracts at the rate of 450 to 500 each month.

Although the competing company has high grade equipment, and has reduced its rates to the Independent level, it is making comparatively slow progress.

Nebraska Telephone Co., (Bell) Reports Deficit to Railroad. Commission.

Considerable surprise was shown in Lincoln and Omaha when the Nebraska Telephone Company filed with the Railroad Commission last week a report showing a deficit of $708,011 for the fiscal year ending June 30. Following is a summary as reported to the Commission:

Maintenance		$654,080
Operation		511,300
General expenses		149,378
Sundry expenses		382,122
Rental of instruments and service from A. T. & T. Company		79,641
Total		$1,776,532
The income is listed as follows:		
From operation		$1,882,438
Deductions—		
Less operating expense	$105,909	
Interest on int. bearing current liabilities	14,193	
Dividends on common stock	274,968	
New construction	282,311	
Total deduction		571,472
Surplus brought forward from last year		813,917
Deficit for year ending June 30		708,011
Surplus		$105,906

The report has not been accepted by the Commission, and it is possible that an explanation will be made which will shed some light on the unexpected character of the report. Meanwhile conjecture is busy, and among investors the charge has been made that, since the bulk of local investment is being made in Independent securities, the Bell company's affairs have been manipulated to produce a report which will locally discredit telephone securities in general, while it will in future draw its funds entirely from Eastern investors in the securities of the American Telephone & Telegraph Company, which controls the local concern. Another view which has been advanced is that the A. T. & T. Co. contemplates the complete absorption of the Nebraska Telephone Company, and is reducing its surplus and otherwise wasting its assets in the purchase of competing concerns, and with a further view to depressing the price of locally held shares, so that their holders may be induced to sell at a low figure.

The fact that the report obscures rather than illuminates the company's financial condition makes it impossible to accept any statements now in circulation as reliable. It is hoped that the Railroad Commission will insist upon an explanation which will satisfactorily account for the deficit.

Oklahoma Companies Organizing to Protest Against Rate Reduction.

The Oklahoma Corporation Commission has aroused the opposition of telephone exchange owners by its order to reduce rates.

Horace Truman, secretary of the Oklahoma Telephone Association, recently addressed communications to the members urging district meetings to formulate protests against the raise. Among other things he says:

"This proposed order comes with all the business men pleading with the numerous telephone companies for more and better toll lines. The present rates, we all know, are reasonable, and no higher than in older states, where the population is much more dense, enabling a shorter line and a smaller investment to serve the same number of people. Here in Oklahoma, with many opportunities for profitable investment in other lines of business, and rates of interest comparatively high, capital has been and is hard to secure for telephone investment, and many a toll circuit badly needed has not been and could not be constructed. Should the proposed order go into effect, how can we hope to build and keep pace with requirements, with rates reduced one-third to one-half, and operating expenses and all fixed charges going higher each month?"

Michigan Tax Board Finds 786 Telephone Companies.

The task of appraising the value of the property of the telephone companies of Michigan for assessment under the ad valorem system of taxation is proving to be equal, in its many perplexing features to assessing the railroad properties. The state tax commission is now engaged in making up the first rolls of the year and the commission has ascertained that Michigan has a surprising number of telephone companies. Although only 124 companies sent annual reports to the auditor general, the commission has succeeded in locating 662 other organizations, making a total of 786. Of that number it is possible the commission will find that between 500 and 600 companies whose receipts do not total $500 a year, may be exempted from taxation.

The tentative assessment of the companies must be completed by the third Monday in January, and the work of preparing for the final assessment must be finished by Feb. 15. In the intervening period all the telephone companies have the right to appear before the commissioners.

The commission, unlike commissions in other states, is obliged to provide its own blanks. Reports are already in from companies in which are listed the equipment of their plants and the value of each item. These reports serve as the basis for fixing the assessment values, but the commission is in addition ascertaining the cost of various items of telephone equipment, and has five experts examining the different plants.

Keystone Report for August.

Following is a summary of the August report of the Keystone Telephone Company, of Philadelphia:

	1909	1908	Changes
Gross earnings	$ 89,923	$ 86,194	Inc. $3,729
Operating expenses and taxes	44,920	43,363	Inc. 1,557
Net earnings	$ 45,003	$ 42,831	Inc. $2,172
Interest bonds	26,343	26,374	Dec. 31
Renewal reserves	8,333	8,333	.....
Surplus	$ 10,327	$ 8,124	Inc. $2,203
From July 1 to August 31:			
Gross earnings	$180,943	$174,531	Inc. $6,412
Operating expenses and taxes	90,453	88,461	Inc. 1,992
Net earnings	$ 90,490	$ 86,070	Inc. $4,420
Interest bonds	52,145	52,572	Dec. 427
Renewal reserves	16,667	16,667	
Surplus	$ 21,678	$ 16,831	Inc. $4,847

Writer in Providence Paper Wants Telephone Competition.

A long letter from a citizen of East Providence, R. I., published in the open columns of the Providence *Sunday Tribune* of Sept. 19, deals with the service furnished by the Providence Telephone Co. (Bell). The letter closes with the following significant wail:

"When the Home Telephone Company wanted to install its system here it was told that we were getting the best service now. Rates were dropped and we were informed that if another system were put in we would experience a great deal of inconvenience. Perhaps we would, but the old and reliable saying is that competition is the life of trade.

"One thing is certain, if the Home Telephone Company had only put in a dozen machines in this city, the Providence Telephone Company would be giving a great deal better service to the public than it is doing today."

East Providence, Sept. 14. J. A. O.

One more community deceived by the glib promises of the Bell monopoly promoter! Central Union *News*, please wake up and copy!

Shop and Salesroom

Mechanics' Tools in Telephone Work.

It is the fashion of the times to say that today we are in an era of specialization. In discussing the mechanic arts this opinion is frequently advanced, and followed with the statement that nowhere does one find a jack-of-all-trades who is proficient in any line of work. Yet, if

Fig. 2—Standard American Wire Gauge.

one wishes to find a practical contradiction of these ideas, or at least an exception to prove the rule, he has only to get a line on the job of the installer of telephone equipment.

His trade combines some of the qualifications of the blacksmith, the plumber, the machinist, the carpenter and skilled cabinet worker with the special training of a wireman. And in fitting formed cables in place and other work, the telephone mechanic finds it no less necessary to provide himself with accurate measuring devices than does the ordinary worker in wood or metal. Although in years past a great deal of work has been done by haphazard methods, present standards require the use of tools which are accurate, and also have the durability which only reliable manufacturing methods can produce. The old-fashioned wood rule, which was later improved by adding

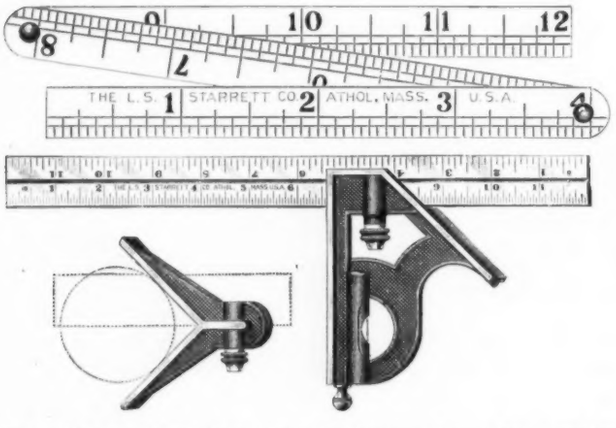


Fig. 1—Folding Steel Rule, Made in One and Two-Foot Lengths. The Combination Square—A Rule, Straight Edge, Gauge, Bevel and Try Square, Etc., in One Tool.

brass runners along the sides, strengthening hinges, etc., is hardly ever seen in the hands of a skilled workman or foreman. A folding steel rule, such as is shown in Fig. 1, is more accurate, convenient to carry, and will last indefinitely long. Steel rules and scales are also taking the place of less durable material in the drafting room.

In transferring measurements and laying out work a combination square (Fig. 1) is a great time saver. In laying out cable forms, making cabinets, moldings and in the woodwork so often necessary in branch exchange installation it is practically indispensable to a man who has once learned to appreciate its value.

The wire gauge shown in Fig. 2 is tested after hardening, to insure accuracy. It is a practical necessity for testing purchases, picking out the proper size of wire for a particular use, etc., as the eye is only approximately accurate, and often leads the man who attempts to guess at the size of a wire into error.

While not liable to be used every day, a hack saw is one of the tools which is found in nearly every exchange. Its price can be saved to advantage in a week by using it to cut apart lengths of heavy copper wire which can be worked up into soldering coppers that work better than most composition coppers on the market.

The simple transit shown in Fig. 3 is an instrument which, as a simple device for doing accurate work, has a wide field of usefulness in telephone construction. It can be used to advantage in laying out and grading conduit runs, pole lines determining distances not susceptible to

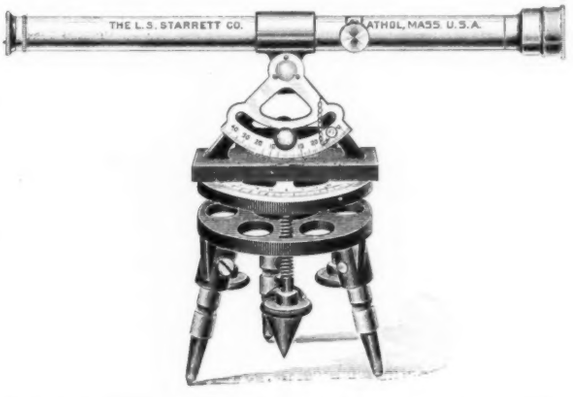


Fig. 3—Transit for Taking Levels and Horizontal Angles.

direct measurements, etc. Its accuracy is sufficient for all practical purposes of this sort, and enables a foreman or construction engineer to avoid the losses incurred in following rule of thumb and cut and try methods, when the expense of employing a surveyor is not warranted.

When a dynamo is not giving the full voltage required a reading of its speed should be taken. The speed indicator shown in Fig. 4 is arranged to automatically register hundreds as well as tens, and by relieving the mind from keeping tally is sure to give accurate results on a single reading.

The articles above mentioned are included in the large list of fine tools manufactured by the L. S. Starrett Co., Athol, Mass. The company's catalogue, containing over 200 pages, gives many more tools, such as handy metal screw drivers, steel tapes, micrometers, screw pitch gauges, etc., which are frequently required in telephone exchanges.

In telephone factories, as in others where high grade machine and woodwork are done, these tools are well known, and enjoy a high reputation. The Starrett Company has achieved success not only by reason of the superior material and finish which characterize its product, but by the thoroughly practical type of designs which it employs, and its promptness and reliability in all business transactions with its customers.

Peirce Specialty Company Purchased by Hubbard & Co.

Hubbard & Company, of Pittsburgh, Pa., manufacturers of shovels, railroad track tools and telegraph line material, announce the purchase of the business of the Peirce Specialty Company, of Elkhart, Ind. The Peirce factory at Elkhart will be operated until further notice, but all correspondence should be addressed to Hubbard & Co., Elkhart, Ind. The Peirce specialties will be produced on a larger scale and complete stock will be placed at several convenient points.

Mr. C. L. Peirce, Jr., formerly president of the Peirce Specialty Company and designer of the specialties bearing his name, will be in charge of this new department of Hubbard & Co.

New Independent Telephone Factory.

The Interstate Electric Manufacturing Company, which heretofore has been the manufacturing branch of the Interstate Supply Company, at Sioux City, Ia., is now a separate corporation, organized under the state laws of Iowa with an authorized capital stock of $100,000. The new company has been gradually developing a nice line of telephone apparatus for the past three or four years and already has a fine patronage established. R. Hansen is secretary and general manager of the company, while Max McGraw is president, W. S. Warfield, Jr., vice-president, and W. J. McGraw treasurer. All of these gentlemen are widely and favorably known throughout the telephone field, Mr. Hansen having been engineer for a number of the leading Independent manufacturing concerns within the past nine or ten years, while the McGraw boys have been prominent in jobbing circles of the West for several years.

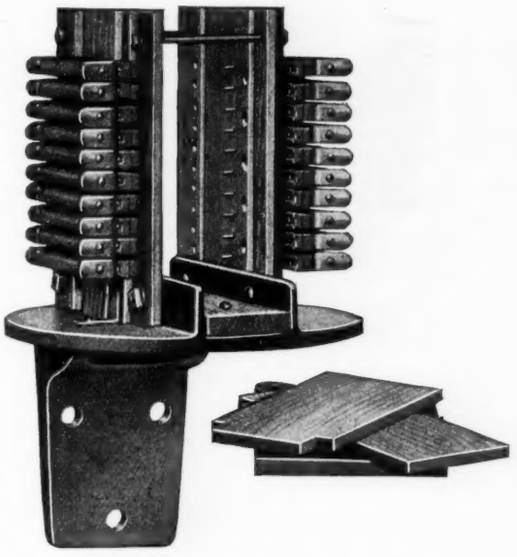
The "Never Slip" Wire Grip has evidently found a place in the affections of telephone men, generally. Letters received from a number of telephone companies all over the Union express their approval of the working of this grip. In this connection, it may be of interest to many of our readers to know that the president of the Union Electric Manufacturing Company of Pekin, Ill., which makes the "Never Slip" Wire Grip is Geo. H. Glass who has been a conspicuous figure in the telephone industry for a number of years. It is pretty hard to beat a good proposition, carefully figured out by a practical telephone man, like Mr. Glass.

The Kellogg Switchboard and Supply Company will install a complete two-section switchboard, of the latest type, for the Logan Home Telephone Company, Logan, Ohio. This includes one chief operator's desk, one wire chief's desk and complete exchange equipment.

During the first half of September the Kellogg company received orders for twenty-six switchboards.

Sterling Electric Co. Issues New Catalog.

The Sterling Electric Company, of Lafayette, Ind., has added another type of cable terminal to its well known line. The protection is made up of its "Snap-in" tubular



The New Sterling Cable Terminal.

fuses, with or without carbons, as desired. This terminal meets the demands of companies desiring a terminal into which the lead cable may be brought direct, without the use of a pothead.

This company has just received from the printers its new Bulletin No. 3, which describes many types of can top terminals, as well as a full line of protective devices. The bulletin is being mailed to regular customers, and all others who ask for it.

The Blake Signal & Manufacturing Company, of Boston, announces that James Goldmark, formerly New York representative, is no longer connected with that concern.

John M. Klein, of Mathias Klein & Sons, the well-known Chicago manufacturers of linemen's tools and supplies, is making an extensive business trip in the West and along the Pacific Coast.

L. M. Ericsson Telephone Manufacturing Company of Buffalo, N. Y., has issued a booklet dealing with its hand-micro extension sets and intercommunicating telephones. The different styles of hand sets are illustrated and described, as are also the various intercommunicating sets which may also be used with the handmicro sets.

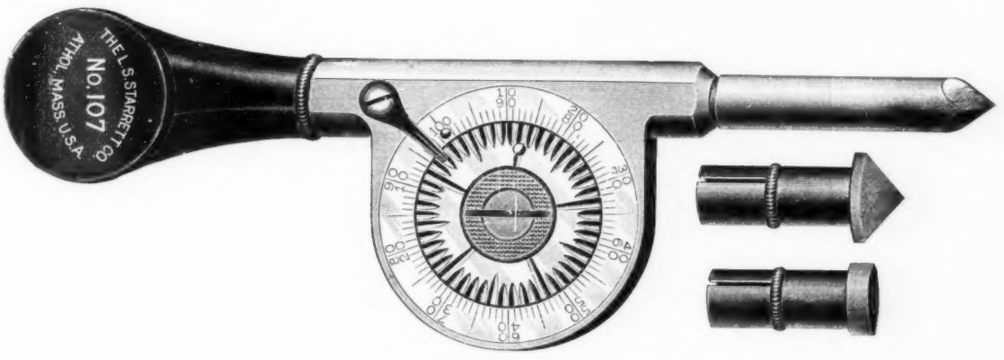


Fig. 4—Registering Speed Indicator, for Dynamo and Motor Tests.

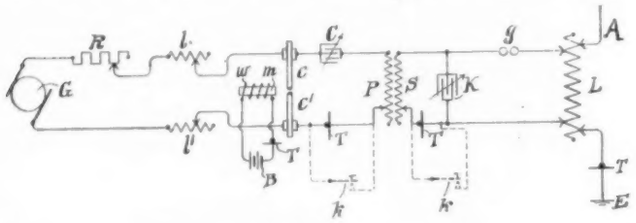
Telephone Patents Issued

By Max W. Zabel

WIRELESS TELEPHONE.

H. Shoemaker, Jersey City, N. J., patent 932,821, August 31, 1909, Assigned to Int. Tel. Const. Co., New York, N. Y.

This wireless telephone circuit has an arc C, C^1 which gives a frequency of high rate, higher than the limit of audition in the case of a telephone system. Its object is to produce high



frequency energy to be radiated in large amounts which may be easily and simply controlled either by the voice, telegraph key or similar instrumentality. A resistance R, and inductances l, l^1 together with the capacity C, form an oscillation circuit. The circuit including C and P may be of a frequency of 10,000 oscillations per second.

A transmitter T or key K may be used to impress signals or voice vibrations on the radiations.

LINE WIRE CONNECTOR.

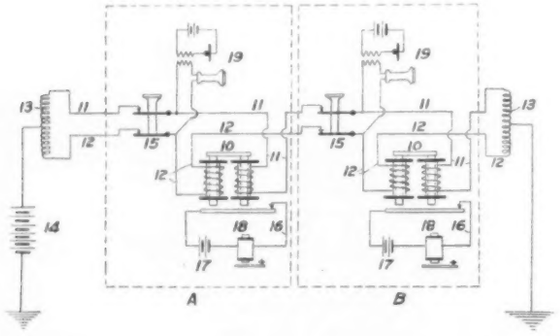
J. S. Pratt, United States Army, patent 934,352, Sept. 14, 1909.

This connector is designed primarily for use in securing a line wire to a connector. It consists of a curved strip formed to provide terminal hooks and has a central laterally offset rib arranged on the inner surface of the curved portion of the strip.

RAILWAY TELEPHONE SYSTEM.

W. K. Howe, Rochester, N. Y., patent 934,811, Sept. 21, 1909, assigned to General Railway Signal Co., Gates, N. Y.

This system utilizes a relay 10 having two coils, one in each line conductor, so wound that for metallic currents of the telephone 19, the relay is non-inductive. For currents from battery 14 through coil 13 over both line wires in parallel, the



relay responds to operate the sounder 18. A step-by-step device may be actuated by magnet 18.

Each core of the relay 10 is provided with a copper shell to reduce the possible reactive effect on talking currents.

RAILWAY TELEPHONE SYSTEM.

E. R. Brodton, Mobile, Ala., patent 933,018, Aug. 31, 1909, 2-3 assigned to G. H. Fonde and E. E. Wagar, Mobile.

This railway telephone system contemplates the use of telephones in train dispatching systems where signals are telegraphically transmitted by wireless to the engine cab, either to notify the engineer or to operate train control appliances. When the train has been brought to a standstill, a telephone circuit may be established using one of the rails as one side of the circuit, and the earth a short distance from the rails as the other side of the circuit. The telephone devices are then connected to the ground, and the aerial apparatus.

TELEPHONE MEMORANDUM PAD.

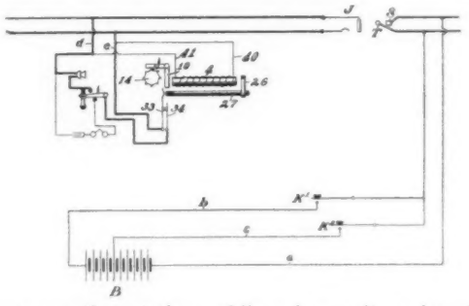
G. M. Urie, Kansas City, Mo., patent 933,277, Sept. 7, 1909.

This pad consists of an attachment for a desk telephone and has a base plate with flanged outer edges, also a roll supporting frame secured to the plate, and a pad holding roller revolubly mounted in the frame. There is likewise a carbon sheet holder comprising upper and lower clamping strips having formed therein interlocking beads and grooves, so that all parts align.

SELECTIVE SIGNAL SYSTEM.

F. J. Mersman and J. Mersman, Ottawa, O., patent 934,979, Sept. 21, 1909.

This system utilizes a relay 4 having two armatures, one of which 10, responds to low current energization and energization above a low value. The second armature 26 responds only to current impulses of high voltage. A high voltage or low voltage impulse will operate the step-up device 14. A high voltage impulse at the time the step-up device is at a given



station, cuts out that station, while a low voltage impulse at a particular station connects it in the circuit. Thus in sending a call, the step-up device is operated throughout the range of the number of stations on the line and wherever a high voltage impulse occurs the corresponding station is cut out.

WALL DISTRIBUTING RING.

J. H. Wilson, Rome, Ga., patent 934,255, Sept. 14, 1909.

This distributing ring is adapted for carrying wires from cable terminals along walls of buildings to subscribers' stations and also for running bridle wires upon cable poles from cable boxes to cross arms. It consists of a wire having a threaded angle end adapted to engage the supporting object. It is bent to form a substantially circular outlined ring terminating in an upright shank portion at right angles and opposite to the threaded end. This construction forms a throat through which the telephone wires may be slipped.

WALL TELEPHONE FASTENING DEVICE.

J. B. Horton, Elkins, N. C., patent 933,838, Sept. 14, 1909.

A screw having a "Y"-shaped wire head is described in this patent. To attach a telephone set to the wall usually four of these screws or clamps are used. They are screwed into the wall until the heads or clamping faces are in a position to engage the beveled edge of the wall board of the telephone cabinet. They are then rotated a quarter-turn and the cabinet slipped into place and the clamps turned into their proper position.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. W. E. WICKENDEN has been appointed Assistant Professor of Electrical Engineering at the Massachusetts Institute of Technology, to assume the duties vacated by Professor George C. Shaad who has gone to the University of Kansas to take charge of the Department at that place. Mr. Wickenden graduated from Dennison University after following a course strong in mathematics and physics. He then taught a year in Rochester, New York, and followed that by a year of graduate study of Physics at the University of Wisconsin. He is now on the Electrical Engineering staff of the University of Wisconsin, and has made a record for himself as a coming man in teaching and research. He is author of a book, now on the press, on Photometry and Illumination.

MR. GEO. TALCOTT has been elected manager of the Geneseo Telephone Company of Geneseo, Illinois.

MR. E. H. LANIER was elected manager of the Alamo Home Telephone Company of Alamo, Tenn., at a recent meeting of the directors.

MR. J. D. DOTY, who has been working as lineman for the White River Valley Telephone Company at Decker, Ind., has been appointed to a much more responsible position by the company and will be located at Olney, Ill.

NEW COMPANIES.

BARRY, ILL.—A charter was granted the Hadley and Eldara Telephone Company, capitalized at $2,000. Articles of incorporation were signed by M. C. Brown, O. L. Fitch and W. H. Moyer.

REDDINGTON, IND.—The Redding Township Rural Telephone Company has filed articles of incorporation. Its capital stock is placed at $3,000 and the incorporators are Thomas Gillespie and others.

BREMEN, KY.—The Bremen Telephone Company was incorporated with a capital stock of $3,000. O. C. Stovall, R. C. Jones and A. J. Browning are the incorporators.

CORNETTSVILLE, KY.—The Cornettsville Telephone Company has been organized with a capital stock of $1,000 to construct an Independent telephone system in that place. It will also construct a long distance line to Hyden, 39 miles, and to Tillie and Gourd, 25 miles. William Cornett is manager of the company.

HARMONY, KY. (Lyon County).—The Harmony Telephone Company is the name of a new company incorporated by W. A. Higgins, J. L. Fulks, I. G. Gray and M. E. Wilcox, with a capital stock of $1,000.

HOLLOWAY, KY.—N. C. Horn, Berry Logsdon, Chester Cummings and others are the incorporators of the Holloway Telephone Company. The capital stock is placed at $1,000.

TOMKINSVILLE, KY.—The Tomkinsville Telephone Company is the name of a new telephone company incorporated by D. Kefauer, R. V. Evans and L. M. Willia.

ST. LOUIS, MO.—Articles of incorporation were filed for the Home Co-Operative Telephone Company. The incorporators are, John R. Gay, Truman B. Barnes, LeRoy Gay, J. W. McCormick, of Maplewood, and F. A. O'Connor, of St. Louis. Capital stock, $2,000.

ALBANY, N. Y.—The Hudson Valley Telephone Company was incorporated to operate telephone and telegraph lines through the state to Canada and through the Eastern states. James M. Ryan, P. F. Crowe, Edward J. Kelly, of New York, are the incorporators. Capital stock, $25,000.

BELFAST, N. Y.—A new telephone company has been formed in Belfast and is called the Allegany Telephone Company, with Vernon J. Davis as president and general manager, L. J. Hoerner, of Buffalo, vice-president; C. J. Miner, secretary, and Geo. I. Fisk, of Belfast, treasurer. They will have connection with the Independent lines.

SEDAN, OKLA.—The Pecan Creek Telephone Company was incorporated by local farmers. The company has a capital stock of $5,000, and the incorporators are P. E. Doss, Kelley Askew and J. H. Zimmerman.

CARLISLE, PA.—A telephone company has been organized in North Middleton Township with Wilson Weary of North Middleton township as president and G. W. Prindle, Carlisle Springs, as secretary and treasurer.

CLEONA, PA.—A meeting was held at this place by those interested in rural telephone development and at this meeting the Cleona Rural Telephone Company was organized. The new company has sufficient funds subscribed to complete the construction of about 11 miles of line. The officers and directors are as follows: G. Holzappel, president; H. S. Fegan, secretary; A. H. Horst, treasurer and agent. Directors, Allen B. Light, H. B. Horst, Henry C. Snavely, M. A. Meyer. The contract for material has already been awarded.

NEW ALEXANDRIA, PA.—A new company organized by a party of men, among whom are M. K. George, Wm. Christie, of Saltsburg; John D. McCurdy, Liverpool; C. R. Beatty, John Moffatt, Wm. Latimer, of New Alexandria, is the New Alexandria Telephone Company. The capital stock is $5,000.

COLUMBIA, S. C.—A commission has been issued to the Farmers' and Merchants' Telephone Company of Allendale.

SMITHVILLE, TENN.—The Smithville Home Telephone Company, of DeKalb county, has been organized and incorporated, with a capital stock of $3,000. W. H. Davis, T. W. Wade, J. H. Christian, W. T. Hayes, E. G. Lawson and several others are the instigators of the organization.

RIPLEY, TENN.—Applications for a charter of incorporation of the Lightfoot Telephone Company has been filed with the county recorder. The capital stock is placed at $4,000 and the application is signed by J. H. Coughlan, W. H. Foust, W. F. Roberson, Dr. M. S. Glenn and R. L. Dennie.

CLEAR CREEK, VA.—A telephone company was organized at this place for the purpose of constructing and operating a line between Clear Creek and Lawson.

GRUNDY, VA.—The Sandy Valley Telephone Company is the name of a new corporation incorporated with a capital of $4,000. Jno. A. Looney, of Grundy, is president; Bart Belcher, Artia, vice-president, and R. E. Elswick, Mouth Card, Ky., secretary-treasurer.

WINGHAM, CANADA.—The North Huron Telephone Company was organized at a meeting of the shareholders held here. At a meeting of the directors officers were elected as follows: President, Geo. Spotton; vice-president, W. J. Greer; managing director, Wm. Maxwell; secretary, H. B. Elliott; solicitor and treasurer, K. Vanstone. The company has been incorporated with a capital of $10,000, and has secured the right of doing business in the townships of Turnberry, Morris, East and West Wawanosh, Howich, Kinloss, Culross and Carrich. Lines are already built to the villages of Bluevale, Belmore, Belgrave and Whitechurch. The work of building new lines will be shoved along as rapidly as possible.

FINANCIAL.

TREMONT, ILL.—At the annual meeting of the Farmers' Mutual Telephone Company it was voted to increase the capital stock from $20,000 to $40,000.

SAVANNAH, MO.—The stockholders of the Mutual Telephone Company increased the capital stock of the company from $1,500 to $2,000.

PAPILLION, NEBR.—The Home Telephone Company of this place has been authorized by the state railway commission to issue $10,000 of new stock, increasing the capital to $37,450.

CONSTRUCTION.

AURORA, ILL.—The directors of the Interstate Telephone & Telegraph Company report that the company have decided to expend $5,000,000 on its system throughout the state. The expenditures will be made at the rate of about $1,000,000 each year.

CHAMPAIGN, ILL.—The Home Telephone Company is just now starting in to spend $10,000 or $12,000 in the further improvement of its system in this city and Urbana. Great quantities of cable have been received the past few days and this cable will be put into place at once, so that additional telephones can be installed. This latest improvement is made necessary through the increase in subscribers, the company not having enough lines to accommodate them as rapidly as they have been demanding telephones. The work will give employment to a large number of extra men. It is understood from President Manford Savage that the first work will be taken up in the vicinity of the University of Illinois.

LA SALLE, ILL.—The telephone company in this city will, within the year, be obliged to put its wires all underground in the business section, owing to a ruling of the city council.

COLUMBIA CITY, IND.—The Whitley Telephone Company has nearly completed the installation of a new central energy system in the city. This improved system will be a boon to subscribers.

COLSON, KY.—J. M. Brown, of this place, manager and owner of the Lower Rockhouse Telephone Company, will shortly begin the construction of a local telephone line from Colson, via Isom and Jeremiah, Ky., to Indian Bottom, 14 miles, where connections will be made with the Perry County Telephone Company's line. Construction material and telephones will be needed.

OWENSBORO, KY.—The Home Telephone Company has just

completed and opened a new exchange at Sorgho, and likewise one at Yelvington. At Rome business is increasing very rapidly, forty new subscribers having been added.

LIMERICK, ME.—The Ossipee Valley Telephone Company is rebuilding its lines.

GRAND LEDGE, MICH.—The Grand Ledge Telephone Company is very busy of late stretching new cable about the city.

OWOSSO, MICH.—Plans have been completed by the Union Telephone Company for making extensive improvements to the system. Much conduit work will be installed, and the system overhauled generally. Headquarters of the company are at Alma, Mich.

BUTTE, MONT.—The M. J. Connell Company has awarded to the Montana Independent Telephone Company a contract for the installation of a private branch exchange to be connected with the exchange. Telephones will be installed in all departments of the store and a switchboard installed in the office. The Montana Independent company has been making quite a specialty of branch exchange work lately, and now operates such exchanges in most of the large stores and plants and numerous smaller concerns, and at present has contracts for several small private exchanges in Butte.

MISSOULA, MONT.—Supervisor Elers Koch of the Lolo National Forest has started a crew of men at work on the construction of a government telephone line, which will connect the Petty creek ranger station, in the Coeur d'Alenes, with the telephone system at Lothrop, the line to be about four miles in length. When this is completed the men will be put to work on the construction of lines connecting Iron Mountain, Quartz, St. Regis and Haugen. All of these lines will be for the exclusive use of government employes, and no private persons will be allowed connection.

AVOCA, N. Y.—Important changes and improvements are planned for the properties of the Overland Telephone Company, an Independent concern which covers the northern towns of Steuben County and extends into Ontario and Yates. The officers of the new company are: President, Herbert M. Tuttle; vice-president, D. Dougherty; secretary, L. H. Conine; treasurer, R. J. Scott; general manager, Burt W. Boothe of Atlanta.

GUILFORD, N. Y.—The directors of the Riverside Telephone Company have voted to extend the lines of the company to Sidney Center.

LANGDON, N. D.—Work will be commenced within a short time on a telephone line from Langdon to Waterloo. This line is being built by farmers along the route, and will be connected with the Langdon exchange.

MORGANTOWN, PA.—The Conestoga Telephone and Telegraph Company just completed a new line to Branston, and is rebuilding its line between Morgantown and Geigertown.

PITTSBURG, PA.—The Pittsburg & Butler Street Railway line, running from Pittsburg to the capital of Butler county, has adopted telephones for the operation of its cars. The chief dispatcher's office is at Mars, between here and Butler, and booths have been erected at every station and siding. So far the system has been very satisfactory, and it is thought that in time the telephone will supplant other means of operating cars on the interurban railway lines.

CHAPIN, S. C.—The Chapin Telephone Company has been compelled, owing to its rapid growth, to order a new and very much larger switchboard to accommodate its patrons. Several new lines have been built, and a line running to Lexington, across the Saluda river, it is thought, will be completed soon.

STANTON, TENN.—The Stanton Telephone Company has its line nearly completed all over the county south of Hatchie River, running into Fayette and Tipton counties, and is now placing the telephone sent. The men promoting this enterprise are a guaranty of its success. W. B. Douglas is president; F. G. Rawlins, secretary and treasurer; P. O. Wilkerson, general manager.

RICHMOND, VA.—The Atlantic Coast Line Railway has begun the construction of a telephone line from this city to Rock Mount, N. C., which will be used exclusively for operating trains on that division of the road. This method of operation has been under consideration by Virginia railroads for some time. The telephone service will not be restricted to stations and signal towers alone, but can be installed in trains, making possible quick communication between conductor and section director or dispatcher at any time. For some months the Richmond, Fredericksburg and Potomac Railway has been looking into the merits of the telephone system, and if the experiment of the Coast Line is attended with satisfactory results, the road between here and Washington may be similarly equipped.

ROSALIA, WASH.—The Rosalia Telephone Company has installed a new switchboard in its Pine City office to accommodate the increased business.

WAUSAU, WIS.—The Wausau Telephone Company is soon to build a new exchange building which will cost in the neighborhood of $25,000.

ELECTIONS.

JONESBORO, ARK.—At the recent meeting of the stockholders of the Home Telephone Company the following directors were elected: J. B. Mason, E. J. Mason, M. P. Welch, Dr. H. A. Stroud, R. L. Stringer, A. W. Hall, W. T. Nash, Preston Hatcher and J. F. Christie.

AURORA, ILL.—The Interstate Telephone Company held its annual meeting a short time ago and officers were elected as follows: H. H. Evans, Aurora, president; W. E. Bogle, Chicago, vice-president; R. B. Gallup, Aurora, secretary, and J. F. Harrall, Aurora, treasurer and general manager.

TREMONT, ILL.—At a largely attended meeting of the Farmers' Mutual Telephone Company, John Sumner, as president, and George F. Brecher, as secretary-treasurer and manager of the company, were re-elected. Peter Sweitzer was chosen as a director of the company. The company is reported to be in a very flourishing condition, having already over 600 telephones, and the officers expect that when the system is entirely completed they will be deluged with orders for service.

DUBUQUE, IA.—The annual meeting of the stockholders of the Interstate Telephone Company was held a short time ago, and a large number of stockholders were present. The reports showed the company to be in good condition, and the stockholders were all much pleased with the prospects of the company becoming a regular dividend payer soon. The stockholders took advantage of the opportunity to protect themselves against any effort from outside parties to gain control of the property by purchasing all the stock from individual stockholders, and 65 per cent of the stock was turned over to two trustees, viz., D. D. Murphy, of Elkador, and C. M. Laxson, of Earlville, who will hold the stock for the mutual benefit of the organization. The officers elected are: President, J. M. Dunn, Earlville; vice-president, A. Gadsden, Dyersville; secretary, J. H. Denehof, Dyersville; treasurer, C. M. Laxson, Earlville. Directors, V. H. Stevens, Dubuque, and George Kriebs, of Elkport.

ADMIRE, KAN.—The Admire Telephone Association held its annual meeting a short time ago and as a result of the election held the following will serve the interests of the company for the ensuing year: President, P. J. Symmonds; vice-president, Willis Clayton; secretary, Geo. W. McDonald, and treasurer, D. C. Houck.

GIRARD, KAN.—The annual meeting of the stockholders of the Girard Telephone Company was held a short time ago and the officers were all re-elected to office.

NORFOLK, NEB.—Burt Mapes was re-elected president; P. Michaelson, of Tilden, vice-president; W. A. Witzigman, secretary and treasurer, and T. E. Parmli, of Plattsmouth, C. H. Smith, of Sioux City, and W. J. Stadelman, of Norfolk, directors of the Norfolk Long Distance Telephone Company, at a recent meeting of the stockholders. The reports offered by the officers were very gratifying.

POMEROY, OHIO.—The stockholders of the Citizens' Telephone Company held their annual meeting for the election of officers a short time ago. The officers were re-elected and stand as follows: George V. Lasher, Rutland, president; H. S. Burson, Jerseyville, vice-president; H. R. Ogden, Carpenter, secretary, and W. J. Lanning, Rutland, terasurer.

WHEELING, W. VA.—At the annual meeting of the National Telephone Company held recently directors selected were: A. S. List, John L. Dickey, John A. Howard, S. W. Harper and W. C. Handlan.

MISCELLANEOUS.

FULTON, KY.—The Rural Telephone Company has purchased a building and the local telephone exchange will be moved to this place.

SOMERSET, OHIO.—The Citizens' Telephone Company, Licking county, was formally opened for operation a short time ago. A number of Newark, Ohio, capitalists are interested in the plant, which starts with about 350 subscribers and is very well equipped to take care of present subscribers and a good many additional.

GUTHRIE, OKLA.—The Heaston & El Reno Telephone Company, a small rural line running out of El Reno, it is reported, will probably have the distinction of paying the smallest amount of gross revenue tax of any public service corporation in Oklahoma. This year A. D. Humbarger, clerk in the state auditor's office, received a letter from T. J. Speer, secretary of the company, stating that its total receipts last year were $4.80 for tolls. He figured that at the rate of ½ of 1 per cent, its tax for the year would be 2 cents, and enclosed a 2-cent stamp in payment.

ALBANY, N. Y.—The State Forest, Fish and Game Commission recently purchased from private persons 13 miles of telephone lines connecting Indian Lake and Blue Mountain Lake in the Adirondacks. The commission has also completed negotiations for the purchase of a seven mile line running west from Indian Lake to Snowy Mountain. Men are now in the field building about 13 miles of new line from Indian Lake to Lake Pleasant. The telephone systems purchased and under construction are to be used in connection with the new system of fire fighting recently adopted for the Adirondacks by the State Commission.

WALWORTH, WIS.—Mr. H. E. Waters, president of the Walworth Telephone Exchange Company, was killed by a shock from a 2,200 volt electric light wire while at work on a telephone pole. Mr. Walters was widely known and thoroughly respected in Walworth, and his unfortunate death was a great loss to the community. Mr. Walters brought about the organization of the Walworth Telephone Exchange Company in 1900, since which time he has been actively identified with the corporation, and of which he was president at the time of his death. He was active and prominent in many public affairs and was justly looked upon as a leading citizen of Walworth.